SERVICING SECURITY Start-up iPolicy Networks is planning a high-speed device that supports a range of security services. Page 12.

PUSHING WIRELESS Vendors will show off a variety of advanced wireless devices at PC Expo this week. Page 14.

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# NetworkWorld

June 25, 2001 Volume 18, Number 26

The network portal: www.nwfusion.com

KENNETH HARVEY, HOUSEHOLD CIO

VoIP activated

FIND OUT HOW

Household International built IP telephony into its customer relationship management system. PAGE 17

Wireless technologies continue to invade the enterprise. Your guide to the latest mobile trends.

The path to 3G.
Page 54

Developing wireless apps just got easier.
Page 58

MATSU

# Microsoft strategy shift casts fog over Exchange

BY JOHN FONTANA

*ATLANTA* — Less than nine months after releasing Exchange 2000 and its highly touted Web Storage System, Microsoft is reducing the role it had assigned the platform as a key development environment. The move will force IT departments to re-evaluate application design.

The about-face means IT executives building applications on top of the WSS, a universal repository for data, will have to design those applications so they can run against the new data store Microsoft is developing for its .Net platform.

But company officials say those new needs are unclear because Microsoft's .Net infrastructure and programming model is still in its early days of development.

"If they make changes and we have to rewrite code, it will have a significant impact on our organization because we write heaps of code on Exchange," says Bob Fish, senior technical analyst for Target. "It could make it more difficult to upgrade and we might have to skip a version while we get everything converted."

He says Target is rewriting code for such applications as

See **Microsoft**, page 16

# Starbucks wireless network a sweet deal for MobileStar

BY CAROLYN DUFFY MARSAN

Starbucks Coffee this summer will launch one of the largest wireless network initiatives ever, rolling out high-speed Internet access in all 4,000 of its North American shops.

The initiative is a boon to MobileStar Network, the ISP responsible for the wireless LAN connectivity in each Starbucks stores and the backbone network connecting the shops to the Internet. MobileStar expects Starbucks will account for 50% of its network footprint by 2003.

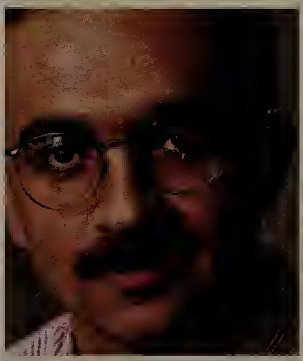
See **Starbucks**, page 83

Newspaper $5.00

# ASP crunch time

*CEOs from three large ASPs look at their competition and the future of the market.*

NetworkWorld Q&A



***"The market is rationalizing; the marginal players have disappeared."***

George Kadifa, CEO, Corio

***"I don't think there is a major company CIO that doesn't at least think about ASPs today."***

Andrew Stern, CEO, USi

***"We booked $60 million in contract value in the first quarter. That's probably more than all the other ASPs combined."***

John Charters, CEO, Qwest Cyber.Solutions

See page 82

Microsoft Project 2000

Microsoft Office Application

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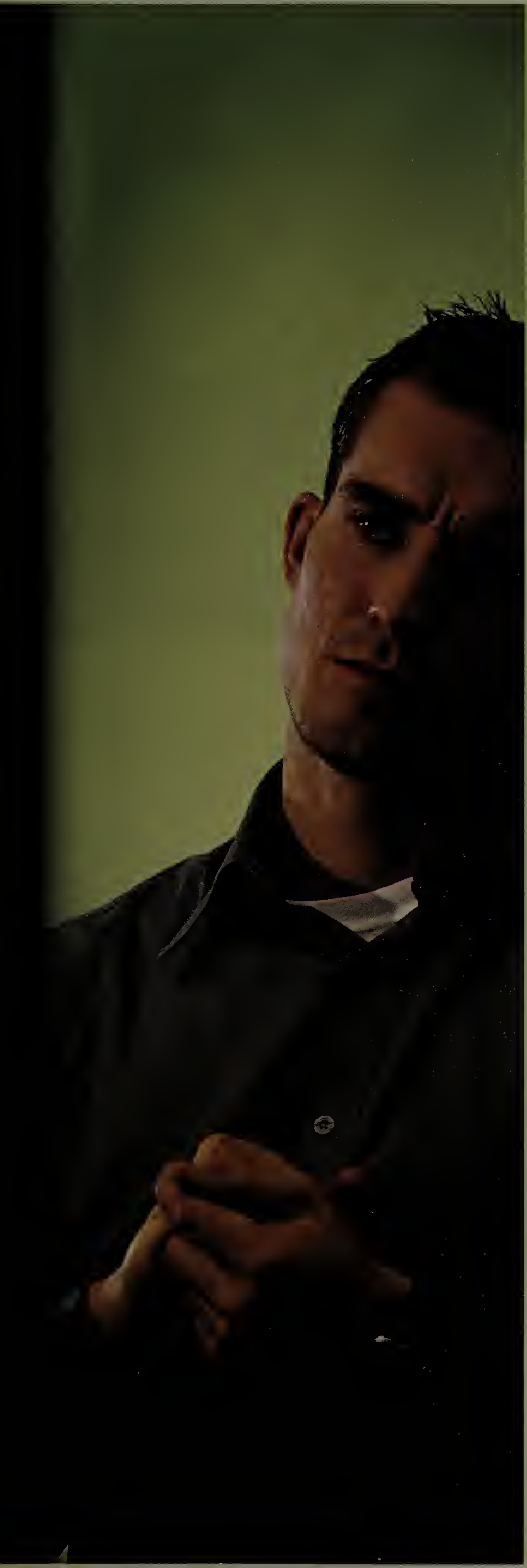

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|---|---|---|---|
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| Dell | PowerEdge 350 | 22" | 125 watts |
| Compaq | ProLiant DL320 | 22" | 180 watts |
| IBM | xSeries 330 | 25.7" | 200 watts |

Source for competitor info: Respective companies' web-based datasheets, 3/01.

**take it to the n^th** Sun microsystems

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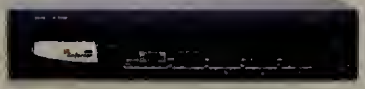

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NetworkWorld TECHNOLOGY INSIDER Wireless

# Wireless technologies

**continue to invade the enterprise. We present two takes on the technology.**

**The path to 3G is filled with roadblocks. Learn how carriers and vendors are traversing the road to third-generation wireless WANs. Page 54.**

**Building wireless apps is a bit easier now**

**Check out our review of mobile application development tools that help bring your applications to every wireless handheld device. Page 58.**

MATSL

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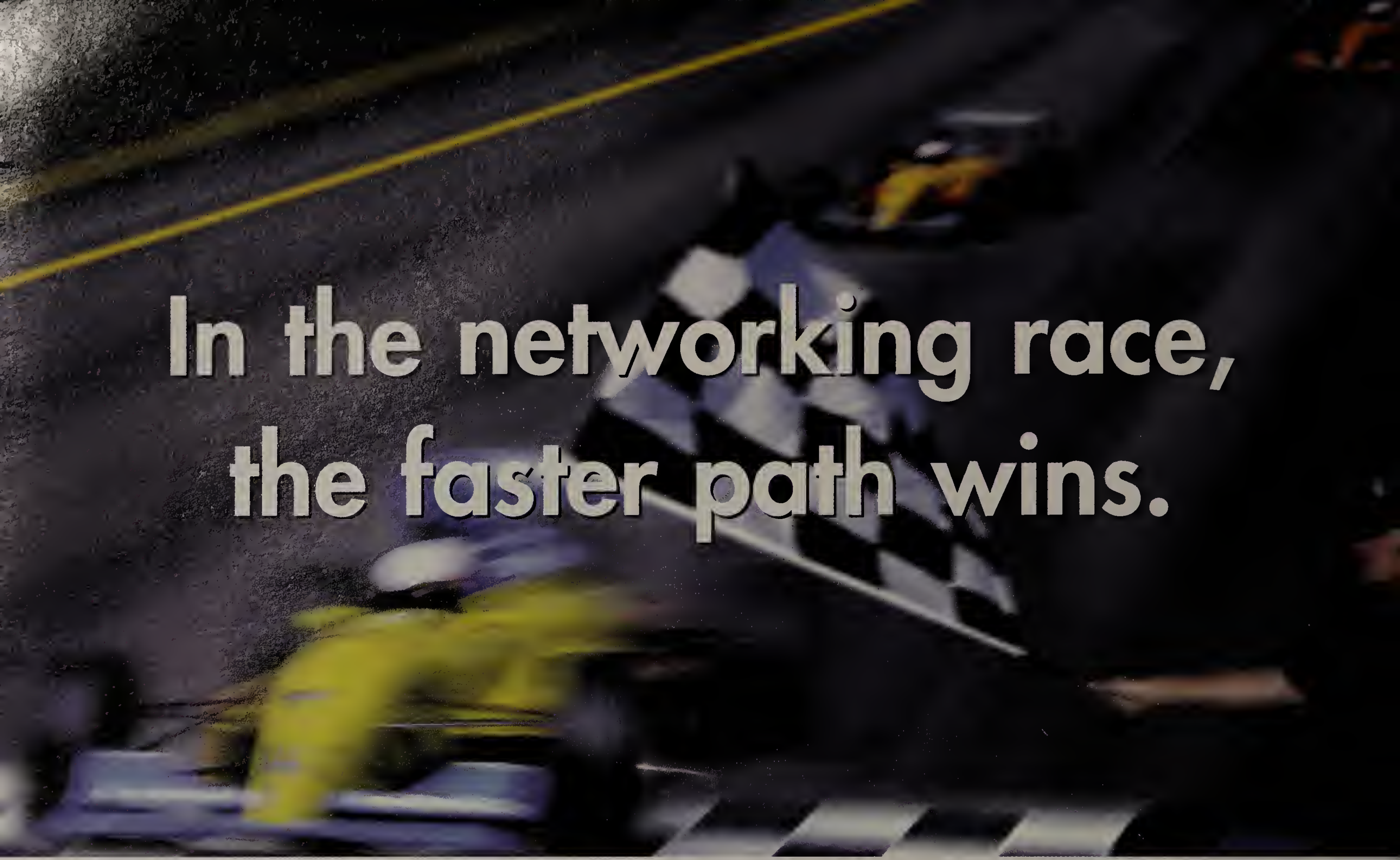

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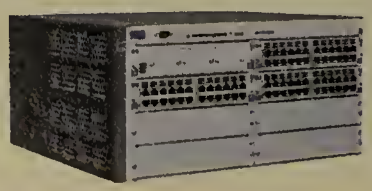

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## NEWS

### Brother, can you spare a dime?

***Read some of the recent news outlining the troubles of rapidly downsizing companies.***

*No more access for Nortel*

Troubled company is shrinking by the quarter. **DocFinder: 4843**

*Tachion hits hard times*

Read how this start-up is waiting for more funding to stay in business. **DocFinder: 4844**

*Closing DSL operations*

Find out how Rhythms NetConnections will end service in nine markets and scale back service in other areas **DocFinder: 4845**

## FORUMS

### Dropped packets

A user reports random packet loss at one of his sites. Upgrading the firmware and resetting the configurations on his switches didn't help. What remedy would you recommend? **DocFinder: 4846**

### Slow Gigabit NIC

Another user says he's getting seriously slow throughput from 3Com 3C996T Gigabit Adapters on five PCs. Suggestions? **DocFinder: 4847**

### Decoding DNS requests

"I'm attempting to capture the IP packet stream in real-time and decode any DNS request to resolve hostnames to IP addresses." Advice? **DocFinder: 4848**

### Smart Tags a dumb idea?

Initial reaction in our forum is not favorable when it comes to Microsoft's proposal to use its Internet Explorer to embed hyperlinks on the pages of other Web sites. **DocFinder: 4860**

### One-stop IT shopping

Visit NetSmart — the IT learning and certification portal that offers quick and easy access to the most comprehensive IT training and education resources. **DocFinder: 4849**

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## CARUSO'S CACHE

*The best of the NetFlash daily newsletter*

### Don't believe the convergence hype

Convergence of voice and data is one of those technology trends you always hear about, but wonder if anyone is actually doing it. At least one user at a Gartner conference this week says convergence for the most part isn't necessary. I tend to agree. And so does Gartner, which asserted that it would be at least five years before companies might see convergence. **DocFinder: 4856**

### Another security hole in Microsoft IIS

If this story sounds familiar, that's because vulnerabilities in Microsoft's Internet Information Server were discovered last month. Now, another hole has appeared, and Microsoft says it can be avoided if you uninstall "unneeded" software. Insert your own joke here. **DocFinder: 4857**

### Scale Eight rolls out storage service for NAS data

Don't feel like dealing with storage? You can pay a company like Scale Eight to deal with it for you. The company will house your data in one of its data centers and will even mirror the data to protect against disasters. **DocFinder: 4858**

### PeopleSoft trims services automation suite for smaller businesses

Simpler is better. So is Web-based access. That's the approach PeopleSoft is taking with the latest version of its Enterprise Services Automation suite. The idea is to bring the collaboration, human resources and financial services tools to smaller companies by making them easier to implement. **DocFinder: 4859**

*— Jeff Caruso, managing editor, online news*

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## COLUMNISTS

### Compendium

*Wacky Web finds*

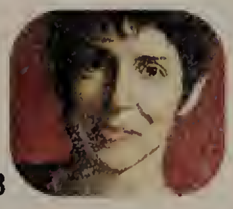
Fusion Executive Editor Adam Gaffin uncovers a CD eating fungus, blue screens everywhere and how to have fun with Linux. **DocFinder: 4851**

### Home Base

*Cracking the telemanagement mystery*

Net.Worker Columnist Jeff Zbar discusses the kind of relationship between the telecommuter and the manager necessary for maximum productivity. **DocFinder: 4852**

### Telework Beat



*Standards battle brewing*

Net.Worker Managing Editor Toni Kistner discusses the tricky business of the AC power-line network industry. **DocFinder: 4853**

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## NEWS BRIEFS, JUNE 25, 2001

### Gerstner to be knighted

IBM CEO Lou Gerstner will receive an honorary British knighthood, one of the country's highest honors and a rare tribute for an American business leader. Gerstner recently joined a list of honorees released to coincide with Queen Elizabeth II's birthday in September. The award honors Gerstner and IBM's role in developing e-commerce. It also praises an IBM initiative that seeks to augment education with technology. The honor places Gerstner among an elite handful of knighted Americans, including film director Steven Spielberg, retired general Norman Schwarzkopf, comedian Bob Hope and former presidents Reagan and Bush.

IBM CEO Lou Gerstner can add knighthood to his resume when he receives the honor this fall.

### Cisco to scale back acquisitions

Cisco, which had been one of the most acquisitive vendors in the IT industry, says it plans to scale back and be more choosy when purchasing other networking companies due to the slow economy. Speaking at a conference in San Francisco last week, Mike Volpi, who as chief strategy officer was responsible for Cisco's 23 acquisitions last year, said the networking giant would be more focused with its purchases. "Instead of making 50 bets, we're honing down into key markets and getting out of some others," he said, adding that the company would announce "a small number" of purchases this year.

### Investors fight for control of CA

Texas billionaire Sam Wyly last week said he and other investors are looking to take over Computer Associates' board of directors due to the company's poor performance of late. Wyly's Dallas investment company, Ranger Governance, initiated a proxy solicitation of the stockholders of CA to replace the current board, now headed by Charles Wang. Wyly's vested interest in CA dates to 1987 when he sold his University Computing Company to CA and more recently when in 2000 he received $4 billion in CA stock for Sterling Software. To win the proxy fight, Ranger Governance would have to convince the majority of CA stockholders to vote the current board out. The company's annual stockholder meeting is Aug. 29. In a statement, CA management expressed its confidence in winning the proxy fight.

### Intel stops switches, routers

Intel will stop developing new products for its enterprise switch and router families, the company said last week. Instead, Intel will focus on developing the core building blocks for those systems, which can then be sold as finished products through OEMs. A spokesman said the company would continue to sell and support its existing line of switches and routers that are part of its Express families.

### Sun downplays Solaris bug

Researchers at a security services company last week reported a bug in Sun's widely used Solaris operating system that they said could allow a hacker to access a company's network via default printer software included with the operating system. The printer daemon is included as a standard feature of Solaris and is used to handle print requests from remote users. The software contains a flaw that could allow a hacker to access the server and gain control over most network functions, Sun spokesman Russell Castronovo confirmed. Sun played down the significance of the flaw, saying it has yet to receive an official report from a customer about the problem. Until the patches arrive, Internet Security Systems (ISS), the security firm that reported the bug, recommends that users disable the "in.lpd" print protocol daemon on printers that may be vulnerable. The bug affects the following versions of Solaris, according to ISS: 2.6, 2.6 x86, 7, 7 x86, 8 and 8 x86.

### LeBlanc named GM at Tivoli

Tivoli Systems last week appointed Robert LeBlanc to the position of general manager. LeBlanc comes from IBM's Storage Networking Division in the Storage Systems Group, where he also served as general manager. He has also held positions as general manager for solutions and strategy of IBM's Software Group. He joined IBM in 1981. His replacement at IBM has not yet been named. Tivoli's former president David Murphy resigned May 18 to be CEO at Asera, an e-commerce company.

Former IBM employee Robert LeBlanc is now general manager at Tivoli.

# Users wary of Red Hat's database market debut

BY DENI CONNOR

*RESEARCH TRIANGLE PARK, N.C.* — Red Hat Networks will enter the database market this week with software that users say won't displace Oracle in their organizations, but may find success as a midrange Web, departmental or workgroup database.

The company will market PostgreSQL 7.1 (pronounced post-grez-Q-L), an established open source database, as Red Hat Database to organizations that need a less expensive option for second-tier Web databases or transaction-intensive applications. Red Hat will add the Red Hat Linux 7.1 operating system, enhanced documentation, a wizard-like installation, 30 days of phone and Web support and a year's worth of updates. The announcement comes a week after Red Hat posted a quarterly profit for the first time.

### Linux Databases

**A number of companies have adopted open source databases for Linux.**

| Database | Company | Web site |
|---|---|---|
| **PostgreSQL** | Great Bridge | www.greatbridge.com |
| **PostgreSQL** | Red Hat | www.redhat.com |
| **My SQL** | NuSphere | www.nushpere.com |
| **Interbase** | Borland | www.interbase.com |

PostgreSQL is a popular open source database that is available for download from www.postgresql.org or through a company called Great Bridge, which adopted it a year ago. Until now, most users freely downloaded the package or obtained it from Great Bridge if they needed help with deployment, configuration and support.

Many users question how PostgreSQL will fare now that Red Hat has adopted it.

"It is good news and shows that PostgreSQL continues to gain credibility in the industry," says Jim Caley, a senior systems engineer for Graco Children's Products in Elverson, Pa. Caley downloaded PostgreSQL from the PostgreSQL Web site. "I would be concerned about moving to Red Hat's distribution if it appeared that it would result in my data becoming proprietary to that distribution."

However, Red Hat claims that any feature enhancements it makes it will donate back to the open source community to keep PostgreSQL pure.

Other users say Red Hat has a tough sales job ahead.

"I perceive a lot of reluctance to adopt free software for mission-critical purposes in very large organizations, even in light of the positive coverage that Linux has received recently," says Michael Jinks, a technical staff member at Saecos in Chicago.

"Given the critical role that [database management systems] play in many enterprises, I expect that this reluctance will be particularly pronounced with regard to PostgreSQL, which is unfortunate, since my experience suggests that it is a better choice than commercial competitors in some situations," Jinks says.

He says Red Hat should focus on Web applications and small- or midsized companies rather than trying to unseat back-end deployments in large companies.

Great Bridge, Red Hat's competitor for PostgreSQL, has had 62,000 downloads of its product; 25% of which are companies in the Fortune 50, the company claims.

The Red Hat Database will be available in July for $199 per month or a one-time fee of $2,300.

Red Hat: www.redhat.com

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# Nokia to trump gigabit firewall vendors

BY TIM GREENE

Nokia this week is announcing a new firewall/VPN appliance for data centers that it says outstrips competitors by delivering more than 1G bit/sec throughput.

The device would eliminate the need for grouping multiple slower firewalls to protect large corporate data centers, thereby streamlining security architecture and making management simpler by reducing the number of devices needed to enforce security policies.

While Nokia would not divulge the exact firewall speed, the company claims the speed is significantly more than 1G bit/sec, the advertised speed of the fastest stateful-inspection firewalls made by Cisco, Lucent, NetScreen, and SonicWall.

Such firewalls can protect a single high-speed link, such as a Gigabit Ethernet connection, or multiple smaller links that carry traffic in and out of data centers or hosting facilities. The faster the firewall, the more individual 100M bit/sec Ethernet subnets it can support.

"The typical scenario with smaller firewalls is to have a couple of load balancers that distribute to multiple firewalls. That's all great when it's two or three firewalls, but when it comes to 12 or 15, the complexity is very significant," says Babak Pasdar, CTO of IGX Global, which designs and implements security for corporations. One larger firewall solves this problem, he says.

**Security spending**

**Users worldwide spent $385 million on firewalls in the first quarter of 2001 and $329 million on VPN hardware. They spent another $121 million on VPN software.**

SOURCE: INFONETICS RESEARCH

While he has not used the new Nokia box, Pasdar has tested all the other gigabit firewalls except SonicWall's.

Pasdar says it is also less expensive to deploy a single firewall, and buying a large one cuts the frequency with which companies will have to add new ones. Maintaining a single firewall when vendors issue software patches and new software versions is also simpler, he says.

The new Nokia device — the company would not reveal its name — can also set up VPN tunnels with remote devices. The speed of the firewall is faster than the speed of the VPN support, the company says, which means that not all the traffic being screened by the firewall can also be VPN traffic. However, the company says it plans to add a VPN acceleration card later that will help close that gap.

Like other Nokia firewall/VPN products, this new appliance will sport Check Point Firewall-1/VPN-1 software. It will also support a routing protocol called virtual router redundancy protocol that lets one of the devices pick up the load if one that it is paired with fails.

Gigabit firewalls in general are less than a year old, notes John Cordova, an analyst with Infonetics. He says because of the newness of the products, it is unclear which one has an advantage over others in real-world deployments.

The new Nokia firewall will be available later this year. Nokia would not disclose the pricing of the firewall.

Nokia: www.nokia.com

# Foundry injects routing smarts in workgroup switch

BY PHIL HOCHMUTH

**Foundry's FastIron 4802 is being positioned as an enterprise workgroup switch, and a customer premise router for service provider networks.**

*SAN JOSE* — Foundry Networks this week will introduce one of the first wiring closet switches with intelligent routing protocols typically used by backbone switches to boost network capacity and resiliency.

Foundry says its FastIron 4802 could be used to deploy Layer 3 switching and advanced routing protocols such as Open Shortest Path First (OSPF) into a wiring closet to strengthen failover capabilities in case an uplink connection to the network core goes down. The switch also includes an ASIC designed to handle quality-of-service (QoS) and rate-limiting tasks.

The FastIron 4802 has 48 10/100 ports and two Gigabit Interface Converter (GBIC) slots for high-speed fiber uplinks to backbone switches. Foundry says companies could use a "dual-honed" setup in a wiring closet with redundant GBIC connections to a backbone. In case of an uplink or core switch failure, Foundry says, OSPF could reroute traffic quickly around the network blocking point. Using OSPF could make the switch route around a downed link three times as fast as a Layer 2 wiring closet switch using the Spanning Tree Protocol (STP) part of the 802.1d Ethernet standard, which keeps traffic from going through loops in a network, and can reroute traffic in the event of a downed network connection. Also, dual-honing with OSPF can provide 2G bit/sec of bandwidth between the FastIron 4802 and the core, whereas with STP, only one of the two dual-honed Gigabit uplinks could be active at once, with the other standing by in case of failure.

While adding IP routing capabilities to a workgroup switch has been done, Foundry says its FastIron 4802 is one of a few switches aimed at corporate wiring closets to include OSPF. (The 48-port Summit48i workgroup switch from Extreme Networks also supports OSPF.)

Whether companies are looking for intelligent routing protocols in a workgroup switch is unclear, some analysts say.

FastIron 4802s will be deployed at the University of Miami as workgroup switches for connecting classrooms to a backbone of two Foundry BigIron 4000s and two BigIron 8000 core switches. But before OSPF can go in the wiring closets, the school is working on implementing OSPF in its core switches for redundancy, says Armando Carlo, a net engineer.

"[OSPF] is really not too critical in the implementation we're doing right now," in the wiring closets, he says. "But that's something we'd consider in the future."

Most companies don't want to use Layer 3 and OSPF in a wiring closet because of its complexity, as Layer 2 Spanning Tree Protocol — inherent in Ethernet — is adequate for handling network faults, says Dave Passmore, research director for The Burton Group.

Hardware in the FastIron 4802 — dubbed JetCore ASIC — supports QoS methods including 802.1p, type of service and Differentiated Services. Another feature of JetCore is support for XRMON, a version of the Remote Monitoring extension to the SNMP that lets high-speed traffic be monitored for performance without degrading the switch's throughput.

The FastIron 4802 with Layer 2 and Layer 3 switching will be available in July and cost $6,000. The "full Layer 3" upgrade, which includes rate limiting, costs an additional $4,500. GBICs for the switch start at $500.

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# Security start-up touts 'all-in-one' device

BY ELLEN MESSMER

*FREMONT, CALIF.* — Start-up iPolicy Networks announced plans to ship a gigabit-speed device that lets large companies or service providers offer a range of managed security services from a single, centralized hardware platform. This eliminating the need to maintain separate devices for firewall, VPN or intrusion-detection applications.

The iPolicy Networks device, called the ipEnforcer 5000, combines managed firewall, intrusion-detection, antivirus, VPN and quality-of-service traffic management provisioning for up to 100 corporations and a total of 500,000 concurrent users. It uses technology licensed from security vendors Symantec and Elron Software, and antivirus software from Network Associates' McAfee division.

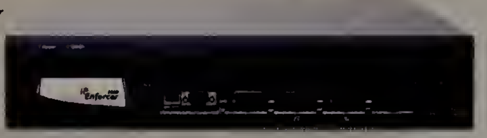
The iPolicy device will compete with NetScreen's high-bandwidth hardware that combines VPN, firewall and traffic management that typically connect to switches and routers inside a data center.

Service providers testing the ipEnforcer claim that the job of providing a range of managed security services would be easier with a single appliance rather than multiple hosted software applications or hardware boxes.

"A bottleneck we've been having as a service provider is having to use multiple devices," says Pradeep Aswani, CEO at Santa Clara security services provider VPN Dynamics, which is testing the ipEnforcer 5000. The main problems with multiple security devices are having to install more than one, and finding engineers trained in each one. "There's an advantage in having one box that can be managed more easily," says Aswani, whose center now uses the Check Point VPN and firewall.

Aswani notes there are other start-ups, such as Nexsi Systems, which are also expected to provide integrated platforms for managed security services.

PROFILE: IPOLICY NETWORKS



**Location:** Fremont, Calif.
**Founded:** February 2000
**Product:** The ipEnforcer 5000 device for unified security services provisioning.
**Founder:** Vimal Vaidya, CEO
**Employees:** 115

According to Mark Housman, an iPolicy vice president, the ipEnforcer 5000 is a four-port gigabit Ethernet unit that plugs into switches or routers on the customer's site. The ipEnforcer 5000, which costs $99,000, feeds information to a management console called the Global Services Administrator that can be set up to give the customer the same view into the log events and network configuration that the managed security services provider has. The idea is the customer remains equally informed about security events as the ISP using ipEnforcer.

Housman says iPolicy anticipates the ipEnforcer might be used by a large ISP as a value-added service sold to smaller ISPs, which would in turn re-sell managed security services to their customers. In that case, smaller ISPs might want to "hide" the identity of the end-user customer from the larger ISP, which can be done through ipEnforcer, Housman says.

The ipEnforcer 5000 should ship in September. Early next year, iPolicy Networks plans to ship a managed security services hardware device that works on a smaller scale and at lower speeds, for use by mid-sized companies.

iPolicy: www.ipolicynetworks.com

# Storage start-up exploits 'processor teaming'

BY DENI CONNOR

*AUSTIN, TEXAS* — Times N Systems will introduce a storage system this week that lets users add inexpensive and nearly unlimited disk capacity and processing power for data-intensive applications.

The four- to 16-processor TNS 1600 is a storage server that works in Windows NT/2000 and Linux networks and improves the performance and scalability of databases or Web-hosting environments. Times N's system uses a technology called "processor teaming," which combines disk capacity, processors and RAM into shared pools to increase the processing power of the system and deliver data more quickly to users.

First profiled in *Network World* two years ago (www.nwfusion.com, DocFinder: 4842), Times N's founders are using technology they acquired as researchers at IBM that lets the storage system handle parallel processing independent of the number of processors and storage involved.

Times N's storage system addresses the shortcomings of current symmetrical multiprocessing and clustering systems that are hindered by memory contention, I/O bottlenecks and latency issues, the company says.

By sharing the RAM from multiple processors, the TNS 1600 can address up to 24G bytes of RAM, letting applications access cached data at the speed of memory rather than disk speed. The Times N storage system uses industry standard Intel servers and off-the-shelf disks, and replaces or reuses servers and storage devices in existing networks.

"The shared RAM has been a big plus for us," says Jeff Barringer, CEO of OnlineHobbyist.com in Austin, Texas. "We maintain our own search engine. During the build process, it goes though anywhere between 200M bytes to 2G bytes."

To boost processing power and increase application performance, the system lets customers group disks and processors. When disk storage is grouped, a virtual pool of data up to 17 terabytes in size can be accessed by the Windows NT/2000 or Linux applications installed.

**Times N System's TNS 1600 supports up to 17 terabytes of data storage.**

"We were attracted to Times N's storage system because we are able to keep adding servers and managing them under a single domain," Barringer says.

"Our Web site keeps getting bigger and bigger — at some point we're going to run out of the ability to store everything on one box. Barringer says. "KingSnake.com is our major Web site. It has over four million documents and photos on it."

The TNS 1600 will concurrently handle the file- and block-oriented data used by network-attached storage (NAS) and Fibre Channel or SCSI-attached storage subsystems. It will compete with NAS systems from Network Appliance, Compaq and EMC.

The storage system is managed with two tools, TNS Team Builder and TNS Team Monitor, centralized graphical user interface-based tools that configure and monitor the status of the system. Team Builder manages the distributed RAM, and partitioning and mirroring of disk drives; Team Monitor provides remote monitoring of the system status and generates alerts to the network manager if problems exist.

The TNS 1600 comes in two models: one without servers or storage that starts at $29,000 and the TNS 1600S, a preconfigured system that includes servers. Both systems will be available this month.

Times N Systems: www.timesn.com

## Correction

The story "Cisco pours on the Gig Ethernet ports" (June 18, page 8) should have stated that the Switch Fabric Module 2 for the Catalyst 6513 Ethernet switch is compatible with that switch along with the Catalyst 6506 and 6509 switches. Also the total number of Gigabit ports the Catalyst 6513 can support is 194.

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# Wireless advances to be on display at PC Expo

BY JOHN COX

*NEW YORK* — Network executives attending PC Expo this week will see a new level of sophistication in wireless devices, networks, applications and tools.

The products reflect an appetite to master a bewildering variety of client platforms, their increased computing power and the need to link these devices more easily with corporate networks.

Some of what will be shown at PC Expo include:

- Broadbeam will introduce ExpressWeb, a set of visual programming tools for building HTML and XML applications, plus a server program to host the applications and format them for any client device that runs a browser. The product is aimed at companies that want to deploy so-called thin-client Web applications — the applications run on a server, to which end users connect via a continuous wireless connection. Eventually, Broadbeam will blend ExpressWeb with ExpressQ, its client-server, wireless messaging middleware that links applications on handhelds with applications on the corporate network.
- Mobileum is releasing Version 2.0 of its wireless server. One of the main changes is a new "presentation server" that takes the output of widely used Web development tools and translates it into the language, protocol and formats needed for display on a handheld device. Developers don't have to use a specialized set of wireless tools, the vendor's own protocols or formatting language. Instead, they can use Web tools from Adobe, Macromedia and Microsoft. The presentation includes a viewer that shows what the application will look like on various devices.

  Like Broadbeam's ExpressWeb, Mobileum 2.0 is designed for devices using browsers to access applications and content. Mobileum runs as a Java application that extends the features of an underlying Java application server, such as BEA Systems' WebLogic, to handhelds using wireless networks.
- To improve management of handheld devices, Pumatech is unveiling a management console for its Intellisync software that lets enterprise users synchronize certain data on their handhelds with groupware servers for Microsoft Exchange and Lotus Domino. The console program lets an administrator manage Intellisync software on desktop PCs, set password protections and access privileges by type of data, and change settings and synchronization options for different user groups. The console program will be part of the Enterprise Intellisync software bundle.
- ZFrame, a Belmont, Mass., start-up, will introduce a beta-test release of a new type of wireless browser. ZFrame is a client browser, available first for Palm OS, and a server program that can retrieve content and serve it to the browser over a streamlined connection.

  According to ZFrame, the software can reproduce on a PDA screen everything seen on a desktop PC screen. Instead of having to scroll through pages, users can work with a stylus to move the page around. The page content appears as a series of pop-ups. Users then zoom in or click on hyperlinks to see the details. ZFrame will be available as a browsing service for $22.50 per month or as an enterprise software license ranging from $25,000 to $150,000, depending on the number of users.

New client devices will abound at the show.

- Symbol Technologies will show the Portable Pen Terminal 2800 running Microsoft PocketPC software. The device, although specialized for vertical markets rather than consumers, shows the hardware sophistication now possible, with little or no price increase.

  The 2800 carries a 206-MHz StrongArm SA-1110 CPU, compared with the earlier model's 66-MHz NEC Vr chip. It also has 32M bytes of read-only memory and 32 of RAM, compared with 12 and 16, respectively, for the previous model.

  The monochrome, quarter-VGA display (240-by-320 pixels) has higher contrast, a brighter backlight and an anti-reflective treatment.

  Symbol estimates the price will be about $1,000, comparable to the previous model's price.
- Novatel Wireless will introduce the Minstrel m500 modem for the Palm m500 and m505 handhelds, and the Merlin G100 PC card for the GPRS 1900 North American band, to support speeds of up to 53.6K bits/sec where GPRS nets are deployed (and up to 14.4 via circuit-switched data connections in GSM nets). ◪

# RealNetworks peddles digital rights management

BY JASON MESERVE

***"There needs to be great content to get people to pay, and there needs to be a business model that makes the content provider excited to put content online and make money."***

Rob Glaser, CEO of RealNetworks

*SEATTLE* — RealNetworks is stepping up its battle with Microsoft for streaming media supremacy by developing a competing standard for digital rights management and tools for accomplishing the task of protecting content.

With support from Sony, IBM, AOL Time Warner and others, RealNetworks last week launched the extensible media commerce language (XMCL) initiative with hopes of creating an open standard for how DRM systems work together.

For content providers such as Sony Entertainment and Bertelsmann, DRM is important for protecting movie and music properties from pirating. Such content can be encrypted and licensed for use over a period of days, hours or even number of times played. Entertainment companies can use DRM to protect themselves from technologies such as Napster, which freely distributed content. The industry claims this will help it offer more content over the Internet.

Enterprise customers can benefit by using a DRM system to protect company assets from prying eyes.

For example, a company briefing can be protected so that it can only be played on internal PCs, with a licensing and encryption scheme that does not allow the content to be viewed on outside machines.

"There needs to be great content to get people to pay, and there needs to be a business model that makes the content provider excited to put content online and make money," says Rob Glaser, CEO of RealNetworks. "You need technology to make the model work."

Using a set of XML-based tags, XMCL defines how licensing, serving and back-end billing servers work together to deliver content in a secure fashion.

The firm hopes to bring the specification to a standards body such as the World Wide Web Consortium this summer.

Microsoft, along with Hewlett-Packard and others, backs the extensible rights markup language (XRML) specification developed by Xerox. A year ago, Microsoft and Xerox created a spinoff called ContentGuard to develop products based on XRML.

Microsoft is using XRML for its eBook transactions. Proprietary technology is being used to protect content streamed between servers running Windows Media services and Windows Media Player clients.

RealNetworks also announced the RealSystem Media Commerce Suite, a set of products for licensing and delivering streaming media content. The products include a packaging tool for encrypting content; a license server for creating a license for each package as it is delivered to the user; a server plug-in that lets the license server interact with RealSystem IQ media server; and a "trusted client" plug-in used to access protected material. XMCL is not part of the suite yet, but will be as it moves closer to being a standard.

While RealSystem IQ can deliver 50 media types, the Media Commerce Suite only protects RealAudio and RealVideo in the initial release. The suite is now available, and has had 15 million Windows-based clients downloaded since last February, according to Jeff Albertson, product manager for media systems at RealNetworks. The server components are available on Windows, Linux and Solaris.

Pricing for the Media Commerce Suite has not yet been announced.

RealNetworks: www.realnetworks.com

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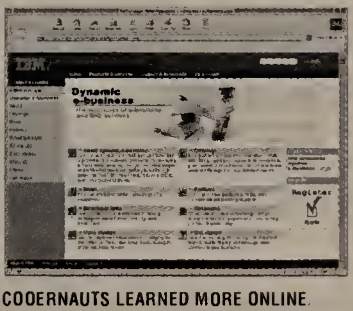

CODERNAUTS LEARNED MORE ONLINE.

For instance, a moving company facing the problem of keeping its trucks full during the entire cycle of the transport, as in return trips during cross-country moves, can now utilize Web services enabled by IBM software to seamlessly locate, book and manage new customers.

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# SpiderCache set to deliver clustered caching tools

BY APRIL JACOBS

Cache software maker SpiderCache this week plans to announce a new beta-test version of its software designed to help users cluster their caches more easily and configure them for better performance on their Web and e-commerce sites.

Observers say it's too early to tell how SpiderCache's latest offering will stack up against competing offerings from vendors such as Volera, CacheFlow and Sun.

But SpiderCache v2.0 Enterprise Beta's integrated clustering and configuration tools will let customers tie caches together to better serve large amounts of content and more easily see how quickly pages are being served. The software can also provide cache performance information that lets customers optimize their caches for better execution.

Mel Hardy, chairman of New York.com, a Web site dedicated to providing information about New York City, says he is interested in SpiderCache v2.0 Enterprise integrated clustering technology because it could make it easier for him to scale caches.

Hardy also says tools designed to help monitor cache performance should make it easier to get information such as Web page delivery rates.

It would also more quickly get content request types, which is important because the caches are critical to Web site response time.

SpiderCache v2.0 Enterprise cache software is designed to run on Windows NT 4.0, Windows 2000 Server, Linux, HP-UX or the Sun Solaris server. That server would typically sit in front of a Web server farm, or out on a content delivery network.

Cache software lets content be stored on the server that is frequently requested so it doesn't have to be constructed on the fly by a Web server.

Companies with Web sites can speed delivery of pages by having a cache process and serve Web page requests.

That is possible because dedicated caches process requests more quickly than a general-purpose Web server that is also fielding transaction processing and a range of tasks associated with running a Web site.

SpiderCache Version 2.0, which will ship in the third quarter this year, will cost about $15,000 per server.

The server-based pricing is different from the existing Version 1.5, which is priced on a per-CPU basis. Current Version 1.5 users that have software maintenance will get the upgrade free.

SpiderCache also plans to ship Version 2.0 Light, for companies with single-server Web sites. Version 2.0 Light will not include clustering and is designed to run on NT 4.0 and Win 2000 Server.

SpiderCache: www.spidercache.com

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**Microsoft,**
continued from page 1

expense reporting and training registration as part of a move from Exchange 5.5 to 2000.

Other companies are likely to have the same concerns. With only about 13% of Exchange users having migrated to Exchange 2000, according to a recent survey by the Radicati Group, that means a major portion of current Exchange shops will have to consider the implications of a new data store as they deploy Exchange 2000 and develop applications.

"The reason Microsoft feels powered to [develop a new data store] is that there has not been much development on Exchange," says Matt Cain, an analyst with Meta Group.

To provide a data repository for .Net, Microsoft's focus is now on Yukon, the code name for the next version of SQL Server. Yukon is being developed as a universal data store for structured, unstructured and semistructured data that would support Web services and XML.

Although the completion of Yukon is two to three years away, the wheels of change are turning. Last December, Yukon was cited as the reason Microsoft killed a set of highly anticipated Exchange tools for supporting the offline use of collaborative applications. And initial test versions of Yukon will be sent to select early adopters by year-end, according to sources.

> ***"Exchange data will transition [into Yukon] but how much of the existing API set we can preserve is still something we are in the process of sorting out. We will be cautious."***

Paul Flessner, senior vice president, Microsoft

"Yes, it is true we are de-emphasizing the Web Storage System," says Paul Flessner, senior vice president of Microsoft's .Net Enterprise Servers. "It is not a stretch to think messaging, development tools, data models and programming models will converge, and Yukon is a part of that. Exchange data will transition [into Yukon], but how much of the existing API set we can preserve is still something we are in the process of sorting out. We will be cautious."

That means some WSS-based applications will easily make the conversion to Yukon while others will not, a message Microsoft has already delivered to its independent software vendors.

At its annual Tech-Ed conference last week, Microsoft highlighted Yukon during the opening keynote address and struck references to the WSS in all partner and Microsoft press releases and printed material for conference sessions. The company has nearly scrubbed its Web site clean of references to the WSS.

Company officials say Yukon will include Common Language Runtime (CLR), a set of interfaces required to run Web services, which are chunks of code that can be stitched together into applications. Sources say Yukon will be branded as SQL Server.Net to fall in line with Windows.Net, which will ship early next year and also include CLR.

"Think about the database being a good place to store and handle," Flessner says. "Since it doesn't matter where the XML data came from, you can start to see the database as a universal file system."

In that scenario, Exchange reverts to its pedigree, according to Microsoft officials, supporting application workflow processes with its built-in workflow engine and providing services such as e-mail and instant messaging, calendars and task assignments.

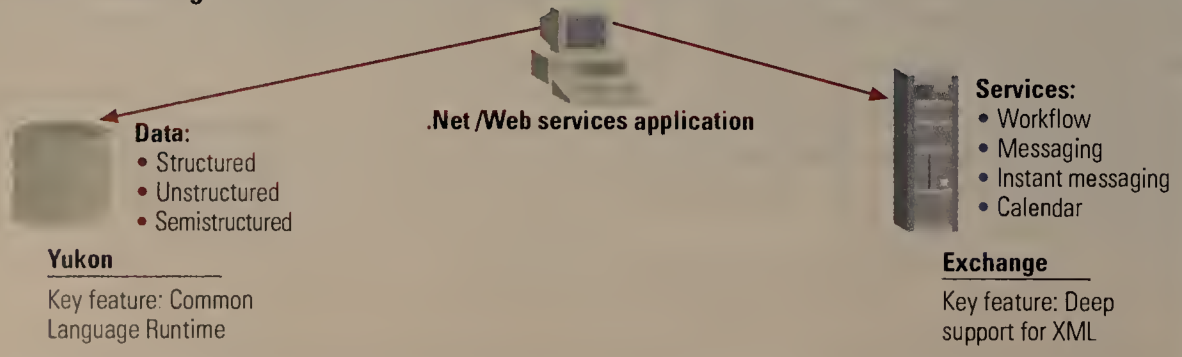
"Clearly Microsoft has to provide an easy transition to the new store to keep users from getting too alarmed," Meta's Cain says. "We tell users they can develop on Exchange 2000 but make sure it's form-based apps with a quick [return on investment] because things are going to change."

Microsoft officials had the same advice.

"If you focus development on Exchange, look for quick ROI but for the future start looking at .Net," says Earnie Glazener, product manager for Exchange. ◪

## A glimpse of the future

**Microsoft is envisioning an infrastructure in which Yukon, the next version of SQL Server, will become a centerpiece for supporting .Net and Web services by providing storage for all types of data. Exchange, meanwhile, would focus on providing collaborative services such as messaging and calendaring.**



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1. $100 Million or more
2. $50 Million to $99.9 Million
3. $25 Million to $49.9 Million
4. $10 Million to $24.9 Million
5. $1 Million to $9.9 Million
6. $100,000 to $999,999
7. $50,000 to $99,999
8. Under $50,000
9. None of the above

A ____ Large Systems *(Mainframes/Minis)*
B ____ Desktops *(Micros/Laptops/ Workstations)*
C ____ Mobile *(including PDAs, Wireless)*
D ____ Servers
E ____ LANs
F ____ WAN Equipment
G ____ Carrier Services
H ____ Internet/Web/E-commerce
I ____ Intranet/Extranet
J ____ Internetworking *(including Routers, Switches)*
K ____ Storage
L ____ Remote Access
M ____ Peripherals
N ____ Software
O ____ Service/Support Services

## 4. What is the total number of sites for which you have purchase influence?

(check ONE only)

1. ☐ 100+ 2. ☐ 50 to 99 3. ☐ 20 to 49 4. ☐ 10 to 19 5. ☐ 2 to 9 6. ☐ 1 7. ☐ None

## 8. Please indicate the Web/Security/LAN/Internetworking/Wireless/Mobile/WAN Equipment/ Carrier Services that you are currently involved in purchasing or plan to purchase:

(check ALL that apply) A. Currently involved in purchasing B. Plan to purchase

WEB

A B
- ☐ 01. ☐ Web Servers/Software
- ☐ 02. ☐ Web Traffic Management
- ☐ 03. ☐ Electronic Commerce Tools
- ☐ 04. ☐ Web Development Tools
- ☐ 05. ☐ Web Content Management
- ☐ 06. ☐ Web Collaboration/ Groupware
- ☐ 07. ☐ Web Acceleration/Caching/ Load Balancing
- ☐ 08. ☐ Web Hosting Services
- ☐ 09. ☐ Other

SECURITY

A B
- ☐ 10. ☐ Firewalls
- ☐ 11. ☐ Anti-Virus Software
- ☐ 12. ☐ Private Key Encryption Tools
- ☐ 13. ☐ DES Encryption Tools
- ☐ 14. ☐ Authentication Tools
- ☐ 15. ☐ Intrusion Detection
- ☐ 16. ☐ Certificate Authorities
- ☐ 17. ☐ Biometrics
- ☐ 18. ☐ Other

LANs/INTERNETWORKING

A B
- ☐ 19. ☐ Fast Ethernet
- ☐ 20. ☐ Gigabit Ethernet
- ☐ 21. ☐ Layer 3-7 Switches
- ☐ 22. ☐ ATM Switches
- ☐ 23. ☐ Routers
- ☐ 24. ☐ Network Attached Storage (NAS)
- ☐ 25. ☐ Storage Area Networks (SANs)
- ☐ 26. ☐ Storage Backup (Optical, Disk, Tape, RAID)
- ☐ 27. ☐ Network Test/Diagnostic Tools
- ☐ 28. ☐ Uninterruptable Power Supplies (UPS)
- ☐ 29. ☐ Network Interface Cards (NICs, PCMCIA)
- ☐ 30. ☐ Hubs/Intelligent Hubs/ Stackable Hubs
- ☐ 31. ☐ Cables,Connectors, Baluns
- ☐ 32. ☐ Wiring/Fiber Systems
- ☐ 33. ☐ Net Management Systems
- ☐ 34. ☐ Voice Over IP (VoIP) Tools
- ☐ 35. ☐ Network Analyzers
- ☐ 36. ☐ Other Local-Area Network/ Internetworking

WIRELESS/MOBILE

A B
- ☐ 37. ☐ Wireless LANS
- ☐ 38. ☐ Wireless/Cell Phones
- ☐ 39. ☐ Wireless LAN Extension Tools
- ☐ 40. ☐ Mobile Data Equipment/Services
- ☐ 41. ☐ PDAs
- ☐ 42. ☐ Other Remote/Wireless

WAN EQUIPMENT

A B
- ☐ 43. ☐ Frame Relay Equipment
- ☐ 44. ☐ Bandwidth Managers
- ☐ 45. ☐ Bandwidth Shaping/QOS Tools
- ☐ 46. ☐ VPN Equipment
- ☐ 47. ☐ ATM Switches
- ☐ 48. ☐ Voice/Video over IP Gateways
- ☐ 49. ☐ Modems
- ☐ 50. ☐ Cable Modems
- ☐ 51. ☐ xDSL Products
- ☐ 52. ☐ Diagnostic/Test Equipment
- ☐ 53. ☐ DSUs/CSUs
- ☐ 54. ☐ PBXs
- ☐ 55. ☐ Call Center Tools
- ☐ 56. ☐ Videoconferencing Gear
- ☐ 57. ☐ ISDN Equipment/Services
- ☐ 58. ☐ Other WAN Equipment/Services

CARRIER SERVICES

A B
- ☐ 59. ☐ Internet Access
- ☐ 60. ☐ Private Lines
- ☐ 61. ☐ Frame Relay Services
- ☐ 62. ☐ ADSL/DSL
- ☐ 63. ☐ T-1/T-3 Services
- ☐ 64. ☐ ATM Services
- ☐ 65. ☐ Managed Services
- ☐ 66. ☐ VPN Services
- ☐ 67. ☐ LAN-Extension Services
- ☐ 68. ☐ OC-3/OC-12
- ☐ 69. ☐ Wavelength Services
- ☐ 70. ☐ Dark Fiber
- ☐ 71. ☐ Other Carrier Services

None of the above (1 – 71) A ☐ 72. B ☐

## 9. Please indicate the Systems/Peripherals/Software/Applications/Business Services that you are currently involved in purchasing or plan to purchase: (check ALL that apply)

A. Currently involved in purchasing B. Plan to purchase

SYSTEMS/PERIPHERALS

A B
- ☐ 01. ☐ Laptops/Notebooks
- ☐ 02. ☐ Desktops
- ☐ 03. ☐ Intel-Based Servers
- ☐ 04. ☐ Risc-Based Servers
- ☐ 05. ☐ Print Servers
- ☐ 06. ☐ Fax Servers
- ☐ 07. ☐ Remote Access Servers
- ☐ 08. ☐ Video Servers
- ☐ 09. ☐ Mid-Range Systems (including workstations)
- ☐ 10. ☐ Mainframes
- ☐ 11. ☐ Printers
- ☐ 12. ☐ Enclosures/Racks/Furniture
- ☐ 13. ☐ Other Computers/ Peripherals

SOFTWARE/APPLICATIONS

A B
- ☐ 14. ☐ Desktop/Server Operating Systems
- ☐ 15. ☐ Network Management
- ☐ 16. ☐ Systems Management
- ☐ 17. ☐ Directory Services
- ☐ 18. ☐ E-Mail
- ☐ 19. ☐ Groupware
- ☐ 20. ☐ Database Management Systems
- ☐ 21. ☐ Customer Resource Management (CRM)
- ☐ 22. ☐ Enterprise Resource Planning (ERP)
- ☐ 23. ☐ XML Tools
- ☐ 24. ☐ Desktop Videoconferencing
- ☐ 25. ☐ Middleware
- ☐ 26. ☐ Document Management Tools
- ☐ 27. ☐ Site Metering Tools
- ☐ 28. ☐ Software Distribution Tools
- ☐ 29. ☐ Data Warehousing
- ☐ 30. ☐ Applications Development Tools
- ☐ 31. ☐ Other Software/Applications

BUSINESS SERVICES

A B
- ☐ 32. ☐ Application Service Provider Services
- ☐ 33. ☐ Systems Integration/ Consulting
- ☐ 34. ☐ Education/Training Services
- ☐ 35. ☐ Other Services

None of the above (1 – 35) A ☐ 36. B ☐

## 10. Please indicate the platforms that are currently installed/planned: (check ALL that apply)

A. Currently installed B. Planned for purchase

NETWORK PROTOCOLS

A B
- ☐ 01. ☐ TCP/IP v4
- ☐ 02. ☐ TCP/IP v6
- ☐ 03. ☐ SNA/APPC/APPN/LU6.2
- ☐ 04. ☐ Novell IPX/SPX
- ☐ 05. ☐ NETBIOS/NETBUEI
- ☐ 06. ☐ NFS
- ☐ 07. ☐ Other Network Protocols

LAN/WAN ENVIRONMENT

A B
- ☐ 08. ☐ Gigabit Ethernet
- ☐ 09. ☐ Switched Ethernet
- ☐ 10. ☐ Fast Ethernet
- ☐ 11. ☐ Ethernet
- ☐ 12. ☐ ATM
- ☐ 13. ☐ Token Ring/Token Ring Switching
- ☐ 14. ☐ Layer 3-7 Switching
- ☐ 15. ☐ FDDI
- ☐ 16. ☐ Fibre Channel
- ☐ 17. ☐ Wireless LANs
- ☐ 18. ☐ DSL
- ☐ 19. ☐ ISDN
- ☐ 20. ☐ Frame Relay
- ☐ 21. ☐ Private Line T1, T3, OC-3, OC-12
- ☐ 22. ☐ Other LAN/WAN Environment

DESKTOP/SERVER OPERATING SYSTEMS

A B
- ☐ 23. ☐ Windows 2000
- ☐ 24. ☐ Windows 95/98
- ☐ 25. ☐ Windows NT/Windows 2000
- ☐ 26. ☐ Novell (NetWare 5.X, 4.X, 3.X, 2.X)
- ☐ 27. ☐ LINUX
- ☐ 28. ☐ Intel Based UNIX
- ☐ 29. ☐ RISC Based UNIX (incl. SOLARIS)
- ☐ 30. ☐ IBM MVS/VM/VSE/ESA
- ☐ 31. ☐ OS/400
- ☐ 32. ☐ Digital VMS
- ☐ 33. ☐ Macintosh
- ☐ 34. ☐ Palm OS
- ☐ 35. ☐ Windows CE
- ☐ 36. ☐ Other Network Operating System

None of the above (1–36) A ☐ 37. B ☐

*Continued on next page...*

*Continued from page one...*

**5.** What is the total number of Servers/Clients installed/planned at your location/in your entire organization? (check ONE box in each column)

| At Location<br>A | SERVERS | Entire Org.<br>B | At Location<br>C | CLIENTS | Entire Org.<br>D |
|---|---|---|---|---|---|
| ☐ | 1. 50,000+ | ☐ | ☐ | 1. 50,000+ | ☐ |
| ☐ | 2. 10,000 to 49,999 | ☐ | ☐ | 2. 10,000 to 49,999 | ☐ |
| ☐ | 3. 1,000 to 9,999 | ☐ | ☐ | 3. 1,000 to 9,999 | ☐ |
| ☐ | 4. 100 to 999 | ☐ | ☐ | 4. 100 to 999 | ☐ |
| ☐ | 5. 50 to 99 | ☐ | ☐ | 5. 50 to 99 | ☐ |
| ☐ | 6. 10 to 49 | ☐ | ☐ | 6. 10 to 49 | ☐ |
| ☐ | 7. 1 to 9 | ☐ | ☐ | 7. 1 to 9 | ☐ |
| ☐ | 8. None | ☐ | ☐ | 8. None | ☐ |

**6.** What is your scope and involvement in purchasing decisions for network products and services for your enterprise?

**A. Scope** (check ONE only)

CORPORATE/ENTERPRISE:
1. ☐ Entire Enterprise/ Multiple Enterprises
2. ☐ Multinational Enterprise
3. ☐ Division/Multiple Divisions
4. ☐ Department
5. ☐ None

**B. Involvement** (check ALL that apply)
1. ☐ Create Network/IT Strategy
2. ☐ Recommend/Specify Brand
3. ☐ Approve Purchase
4. ☐ Evaluate Products/Services
5. ☐ Determine the Need
6. ☐ None

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**7.** What is the estimated number of employees in your entire organization/at your location? (check ONE in each section)

**A. Entire organization:**
1. ☐ Over 20,000
2. ☐ 10,000 – 19,999
3. ☐ 5,000 – 9,999
4. ☐ 2,500 – 4,999
5. ☐ 1,000 – 2,499
6. ☐ 500 – 999
7. ☐ 499 or less

**B. At your location:**
1. ☐ Over 20,000
2. ☐ 10,000 – 19,999
3. ☐ 5,000 – 9,999
4. ☐ 2,500 – 4,999
5. ☐ 1,000 – 2,499
6. ☐ 500 – 999
7. ☐ 250 – 499
8. ☐ 100 – 249
9. ☐ 99 or less

**11.** Which of the following hardware platforms are installed/planned in your company? (check ALL that apply)

**A - Servers**
1. ☐ IBM (Mainframes)
2. ☐ IBM RS/6000
3. ☐ IBM AS/400
4. ☐ Compaq/Digital/ Tandem
5. ☐ Unisys
6. ☐ H-P
7. ☐ Other

**B - Workstations/Desktops/Laptops**
1. ☐ Sun Microsystems
2. ☐ H-P
3. ☐ Compaq/Digital
4. ☐ IBM
5. ☐ Dell
6. ☐ Gateway
7. ☐ Fujitsu
8. ☐ Other

**12.** What is the estimated gross revenue of your entire company/institution? (check ONE only)
1. ☐ $20 Billion or More
2. ☐ $10 Billion to $19.9 Billion
3. ☐ $1 Billion to $9.9 Billion
4. ☐ $500 Million to $999.9 Million
5. ☐ $100 Million to $499.9 Million
6. ☐ $50 Million to $99.9 Million
7. ☐ $10 Million to $49.9 Million
8. ☐ $5 Million to $9.9 Million
9. ☐ $4.9 Million or Less
10. ☐ None of the above

**13.** For which areas outside of the U.S.A. do you have purchase influence? (check ALL that apply)
1. ☐ Europe
2. ☐ Asia
3. ☐ South America
4. ☐ Australia
5. ☐ Middle East
6. ☐ Africa
7. ☐ Canada
8. ☐ None

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# Infrastructure

***TCP/IP, LAN/WAN Switches, Routers, Hubs, Access Devices, Clients, Servers, Operating Systems, VPNs, Networked Storage***

## Briefs

**Tivoli Systems** announced an enhanced version of its storage management product that automates back-up tasks and frees network bandwidth. **Tivoli Storage Manager 4.2** now includes AIX, Solaris and Windows NT support for LAN-free backup and a back-up client for the IBM eServer zSeries mainframe running Linux. It can also back up data based on real-time records instead of scanning for new data on Win 2000 and NT servers. The software ia available starting at $1,550 per server.

Tivoli: www.tivoli.com

**Enterasys Networks** has released a hardware acceleration card for its **Aurorian ANG7000** site-to-site VPN gateway that will boost Triple-DES traffic throughput to 100M bit/sec, the company says. The hardware acceleration product is a daughtercard that fits into a PCI slot inside the ANG7000. Previously, the ANG7000 (based on technology from Indus River, which Enterasys bought last year) could process Triple-DES traffic at 40M bit/sec. The card is available and costs $1,500. The ANG7000 costs around $13,000.

Enterasys: www.enterasys.com

**Intel** has started shipping samples of Gigabit Ethernet adapters for desktops and servers, with the desktop version set to be released later this year for $100. The adapters use standard copper wire networks and can be deployed into existing Category 5 Ethernet or Fast Ethernet networks, Intel says. The server adapter supports the PCI-X bus architecture, and both adapters will support various operating systems, Intel says. The network adapters will be demonstrated at this week's TechXNY conference in New York. Pricing for the Gigabit Ethernet adapter for servers will be announced later this year, Intel said.

Intel: www.intel.com

IN-SITE: *Lessons from Leading Users*

# Convergence is becoming a Household name

BY PHIL HOCHMUTH

Household International has big plans for its call centers. The nation's second-largest consumer finance firm wants to integrate telephony into its proprietary customer relationship management system without disrupting its agents, located in 1,500 branch offices, into a few regional call centers.

The company also wants to add large contact center call routing features to Household branches and to use caller identification information to automatically launch customer record windows onto a loan agent's PC screen, letting the agent serve customers more quickly. Web applications such as a "click-to-talk" are also in Household's future plans.

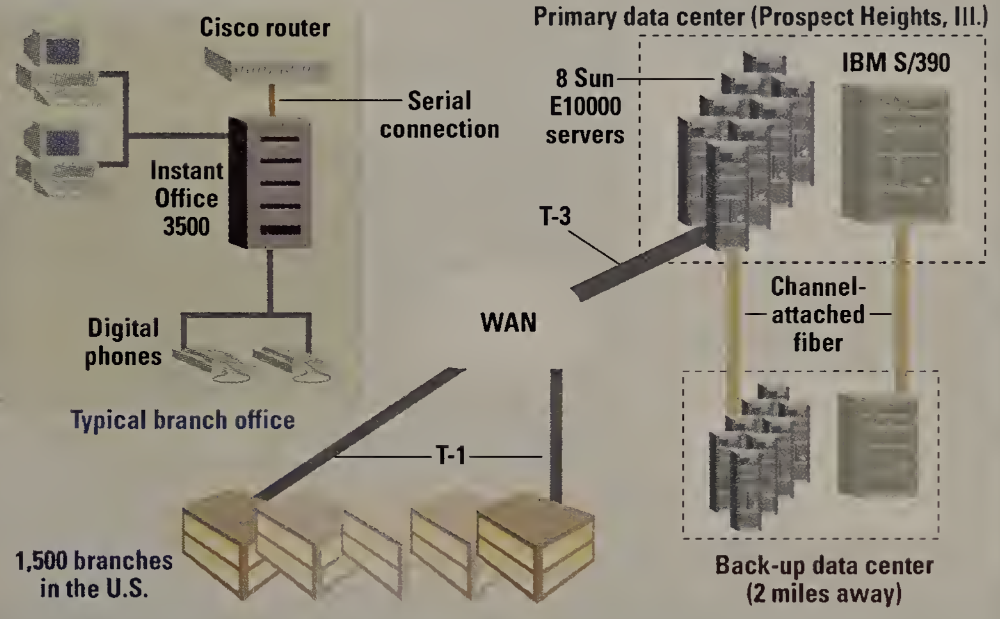
To handle all this, the company chose to install IP PBXs from Vertical Networks in its U.S. branch offices instead of consolidating those offices into a few behemoth regional call centers. In the process, the company will upgrade its branches from 56K bit/sec WAN connection to a T-1 line, and eliminate multiple phone lines leased at each site. In the end, the company says it will save thousands of dollars per month by consolidating six to eight phone lines at each site into a T-1.

Household completed testing of the Vertical Networks InstantOffice 3500 at six pilot sites last month and will roll out the box to its U.S. branch offices during the next six months, according to Kenneth Harvey, Household CIO. Each site will get an InstantOffice 3500, which can support up to 36 users in an office. Most Household

See **Household**, page 18

### Distributed IP voice

**Household International is installing 1,500 InstantOffice IP PBXs from Vertical Networks in its branch offices. The branches will use the converged network to integrate voice into Household's CRM system, which is hosted from redundant data centers at the company's headquarters.**



# Egenera has ultradense blade servers on tap

BY DENI CONNOR

*MARLBOROUGH, MASS.* — Start-up egenera's BladeFrame server is an ultradense, high-powered multiprocessing rack of servers that the company hopes will rival Unix servers from Hewlett-Packard, IBM and Sun.

BladeFrame boxes are aimed at enterprise customers and service provider data centers where power consumption, heat dissipation and cost per cubic foot are concerns. It suits the need IT data center managers have for compact, rack-mounted equipment that can be managed from a central location.

"The biggest pain is having expensive personnel wire, configure or make changes to the physical infrastructure," says Michael Carrier, CTO of infrastructure management firm Totality. "Egenera's box minimizes the amount of physical infrastructure management."

Egenera's BladeFrame consists of a rack-mount enclosure that contains up to 96 servers or blades. Each blade has two or four Intel Xeon processors and is manageable from a browser or command line interface egenera provides.

Each hot-swappable blade plugs into a backplane, which ties them together to form a single pool called a Processor Area Network. When blades are grouped, they create a virtual pool of processing power that can be dynamically reallocated and load balanced as demands change. Redundant, fault-tolerant switches and

See **Egenera**, page 18

www.nwfusion.com

SPACE SAVERS

See how other companies are shrinking their servers to help data centers save space.

DocFinder 4830

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**Household,**
continued from page 17

offices range from 15 to 20 users.

Incoming packetized voice traffic will be stripped off the T-1 by the 3500s and routed to the correct phone extension. Cisco branch office routers will connect to an InstantOffice via a serial connection for routing data packets. Phones, PCs, servers and fax machines will connect directly to InstantOffice.The box has 36 RJ-11 and 36 Ethernet ports.

> **"We're actually going to make money with this system the day we go live."**

Kenneth Harvey, CIO,
Household International

Even with the upgrade from 56K bit/sec to T-1, Harvey says Household will save money by converging voice and data onto the single line.

He estimates each site will save about $3,000 per year, when the cost of the T-1s and InstantOffice 3500s are factored vs. elimination of 56K ISDN lines and eight separate telephone lines now running to each site.

"We're actually going to make money with this system the day we go live," Harvey says.

### Big savings

The company is expecting to save about $4.5 million per year with the new system.

While cost savings are nice, Harvey says the main goal of the project is to add integrated voice/data call center features to the company's branch offices.

"The most important thing in this project was the ease of integration with our CRM system," he says. "If it had been more difficult, we would not have gone with Vertical Networks."

Harvey says application programming interfaces included with the InstantOffice equipment allowed the Household's staff programmers to integrate the its CRM system quickly with the new telephony hardware.

The InstantOffice will let Household mortgage agents launch "screen-pops" of customer information from a customer database, triggered by call ID information.

A future Web application for the CRM system will let customers fill out a questionnaire on Household's Web site and have an agent who is local to that customer respond by phone.

Other converged voice/data features will include automatic customer call scheduling for providing loan updates to customers and the ability to place phone calls from an agent's PC via the CRM system's interface. The system also lets agents locate mortgage documents and fax or e-mail them directly to the customers.

### Got your back

The CRM systems used by every branch office are hosted from redundant data centers, located two miles apart in Prospect Heights, Ill., where Household has its headquarters. The CRM system handles everything from calculating mortgage payments to tracking customer records and processing credit card payments.

Household's CRM platform runs on eight Sun E10000 servers, with an IBM S/390 mainframe handling the accounts receivable database in each data center. The data centers are connected to the WAN via a T-3 line from AT&T.

Using technology from IBM called geographically dispersed parallel sysplex, servers in each data center are connected directly to each other with channel-attached fiber cabling, allowing data written to a primary server to be instantaneously copied on a mirrored server in the back-up data center.

"We have 600 transactions per second going over our network," Harvey says. "We can't be down for even 5 seconds."

Harvey adds that if a single server or even an entire data center were to fail, the system would only miss the last transaction processed.

The hardest part of the project was choosing the right convergence platform and network topology, he says.

### Other considerations

Several convergence products and models for overhauling Household's voice/data WAN were considered before the Vertical rollout.

He looked at several companies that offered communication boards that put phones directly in the agents' desktop PCs, but the installation and support costs of refitting thousands of PCs with the cards was too high.

Harvey also considered deploying regional data centers where the branches would access the company's CRM, but he says he wanted to keep his servers centralized. Also, such a system would not integrate voice and fax messaging as well.

Harvey looked closely at Cisco's AVVID (Architecture for Voice Video and Integrated Data) products.The Vertical IP PBXs and digital phones worked best, he says, because they were the easiest to integrate with Household's CRM system, and he didn't have to switch to IP phones.

Overall, Harvey says the goal of the convergence project was to give agents better tools to deal with customers while maintaining the firm's "small-office" customer service model.

"We tried to go branchless a few years ago, but consumer acceptance of branchless mortgage lenders has been horrible," Harvey says.

"We've seen that with some of the dot-com mortgage lenders that went away recently. If you're closing on a house, most people want to come in and talk to a human being, not over the phone or online," he adds. ◪

Convergence
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# Compaq bolsters handhelds

BY DOUGLAS GRAY

Compaq last week said it was working on technology that will give its iPaq handheld wireless device voice and data capabilities.

Compaq is developing a triband global system for mobile communications/general packet radio service device that will let customers browse the Web, send e-mail and send and receive voice calls in Europe and North America, Compaq says.

The device is in development and is expected to begin carrier trials soon, and service is expected to be available later this year.

Compaq declined to discuss details, but confirmed that current iPaq users can use the technology.

In the meantime, Compaq also announced that it has enhanced its iPaqnet Mobile Internet wireless service by adding content providers, including ABC News, Business Week, ESPN and Yahoo's portal. Wireless streaming audio and video is also available for iPaqnet customers using the Ricochet network and Microsoft Windows Media Player 7.1, Compaq said.

North American customers can now access Lotus's Domino messaging through the iPaq BlackBerry Wireless E-mail Solution, Compaq says. BlackBerry Exchange Server for Microsoft's Exchange 2.1 is available, so iPaq BlackBerry users can synchronize with Exchange, and accept or reject meeting notices.

### Linux angle

Compaq is also looking to advance the use of Linux on its iPaq handheld devices, which are currently offered with Microsoft Windows. The vendor is running a contest to see which developer can build the best Linux application for the iPaq. Developers in Europe have been experimenting with putting Linux on iPaqs, and Compaq would consider offering Linux as an option on its PDAs, although they offered no time frame for such a move.

*Gray is a correspondent with the IDG News Service's San Francisco bureau.*

## PROFILE: EGENERA

| | |
|---|---|
| **Based:** | Marlborough, Mass. |
| **Founded:** | March 2000 by Vern Brownell, CEO; Ken Zolot, COO; whose backgrounds include Goldman Sachs and Stratus Computer, respectively. |
| **Product name:** | BladeFrame: multiprocessing blade computers. |
| **Financing:** | Kodiak Venture Partners, Spectrum Equity Investors, private investors totaling $45 million. |
| **Competitors:** | Hewlett-Packard, Sun and IBM. |
| **Fun fact:** | The name egenera doesn't mean anything specific, but suggests concepts such as "energy" and "next generation." |

**Egenera,**
continued from page 17

controllers provide access to power, the network, storage-area networks and network-attached storage devices.

As for competition, only RLX has introduced high-density blade servers, although Dell, Compaq, IBM and HP have announced plans to make them available before year-end, observers say.

In a typical configuration, the BladeFrame could be configured for a three-tier Web infrastructure in which several processors have Web serving responsibilities and others serve in the second and third tier as application servers and back-end database servers.

Each processor runs Linux, although the company says it will support other operating systems in the future. The BladeFrame will ship this fall.

Egenera: www.egenera.com

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*Celent Communications, 2001

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# GIGABIT FOR THE MASSES? NOT SO FAST

Gigabit Ethernet network interface card and switch port prices have plummeted as fast and as far as dot-com share prices. We are faced with the apparent oxymoron of "low-end Gigabit Ethernet" products. "Trailing" vendors such as NetGear, Asanté Technologies and D-Link are rolling out copper-based Gigabit gear fast and furious. What does it all mean?

According to a Cahners In-Stat analyst quoted in the April 30 edition of *Network World*, Gigabit Ethernet is becoming a networking commodity. The sense is when technology reaches commodity status, mass adoption rapidly follows. We are told Gigabit Ethernet is poised to replace Fast Ethernet as the "standard" connectivity choice.

Because the people making such predictions don't actually have to build networks, this is an easy trap to fall into. While sometimes we can detect no perceptible benefits from these new elements, it is rare that the upgrade causes our service to degrade. But, Gigabit over copper is another story.

Gigabit Ethernet is not new. As with high-speed ATM, the first NIC and switch implementations of Gigabit Ethernet were outfitted to run only over inherently "super clean" fiber-optic connections.

The lack of horizontal fiber connectivity in most companies was a major inhibitor of growth for Gigabit Ethernet. Support for unshielded twisted pair (UTP) copper was needed — and was delivered.

So to hear analysts talk of it, you can just now "plug and play" Gigabit over copper. Unspoken in all our discussions of 10/100/1000 networking is the expectation that we'll have error-free transport. That is, that all the "bits" (literally) will arrive as they were sent. We've become so used to the better-than-five-9s reliability of our physical layer transport that we've pretty much been able to ignore it. You can't ignore it with Gigabit Ethernet.

Getting Fast Ethernet to run over copper wasn't a trivial engineering feat. Think back to our first 100M bit/sec-plus connections, when both FDDI (100M bit/sec) and ATM OC-3 (155M bit/sec) were specified for fiber connections. When ATM finally looked at increasing the market by offering UTP copper-based connectivity, it was for a 25.6M bit/sec connection! Now we are talking about one billion bits per second across humble UTP cabling.

So the fact that it works at all is a minor miracle. To make it work — to have a billion bits per second stream "error free" from NIC to switch — your UTP copper has to meet stringent specifications. And, for connections beyond the wiring closet where server and switch reside, such as connections to the desktop, it is a good bet that cabling installed "way back when" can't handle it.

At Ethernet and even Fast Ethernet speeds, subpar cable was more than good enough.

At Gigabit, the cabling is everything. So before you start adding Gigabit NICs to the specs for your next 500 PCs, get out the cable testers!

*Tolly is chairman and CEO of Tolly Research. Tolly also is founder, president and CEO of The Tolly Group. He can be reached at ktolly@ tolly.com.*

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# Net.Worker

**Products, services and strategies for tying teleworkers to the enterprise**

## Briefs

EarthLink last week announced a static IP DSL service targeting teleworkers and small-office users. Unlike most consumer packages that provide a dynamic IP address that changes each time a user connects, a fixed IP address lets users run a Web server or connect to a corporate VPN. The service costs $15 per month in addition to EarthLink's standard $50 service, and is available in 17 metropolitan markets, expanding to 25 in the future.

Part of EarthLink's Home Office DSL program, the IP DSL service can work in conjunction with EarthLink's Home Networking Gateway, which includes a firewall, file and printer sharing, and VPN. The gateway hardware costs $150 and $10 per month extra.

EarthLink: www.earthlink.net/dsl/

Blaming shrinking sales and a weakened broadband services market, **3Com** recently exited the broadband modem business. But the move isn't expected to impact subscribers since service providers can switch the vendors they use in customer deployments without affecting customers, says Yankee Group senior analyst Matthew Davis.

3Com overestimated how quickly broadband would be turned up, Davis notes, both in the central office and head-end infrastructure equipment and in terms of customer premises equipment such as broadband modems.

Tumult has been the norm this year for 3Com. In January, it spun off its carrier network business, creating CommWorks, a wholly-owned 3Com subsidiary. And last quarter, the company got out of the consumer Internet appliance market by ending its Kerbango Internet radio and Audrey Internet appliance products, and also announced 10,000 job cuts.

# Getting gear for teleworkers

BY STEVE JANSS

**TELEWORKING TOP 10**

*An ongoing series designed to help set up your teleworkers for their small-office or home-office networks.*

PART 5

There it was — a full-page ad in a leading newspaper: a 900-MHz IBM ThinkPad laptop running the latest versions of Windows and Microsoft Office for less money than I scratch-built my 800-MHz workstation last fall. I wanted to cry. Another ad for Winbook's 1-GHz X1 had me reaching for a tissue.

Don't get me wrong — I've known this industry's key axiom since 1981: You never know how soon, or how much, prices will fall — just that they will. But as an IT manager, you're responsible for making the most of limited resources. That includes providing for your teleworkers' computing needs. Buying more than they need, or earlier than they need it, can cost you dearly. However, buying less can cost you even more, in terms of upgrades and lost productivity.

These guidelines will help you discover your teleworkers' sweet spot.

### The right stuff

Your teleworkers' needs begin with processing power. Lost productivity costs more than buying the right processor and enough memory. Your goal is to ensure your teleworkers' systems can handle their needs today and down the road.

So how much is enough? Skills and duties should dictate requirements. Start with a Pentium III or IV. If your teleworkers are typing or processing data, a 500-MHz Pentium III with 256M bytes of RAM and a 17-inch monitor is sufficient. A programmer's needs, however, may be more along the lines of your multimedia workers — nothing less than a 21-inch flat-screen monitor is sufficient to handle their large workspace and editing controls. If they need even more visual workspace, go with a Matrox G450 DualHead video card and a second monitor. Those working with photos need an 800-MHz Pentium III with 256M bytes of RAM. If they're working with digital video, add an additional 256M bytes of RAM and a 1.3 GHz Pentium IV — rendering and effects eat up lots of processor time.

RAM is critical to your teleworkers' performance — it's many times faster than a hard drive. Skimp on the memory and you force your teleworker to wait on his swap file. At less than $50 for a 256M-byte stick of PC-133 memory, all computers should carry at least 256M bytes. Avoid Rambus Dynamic RAM — the additional price isn't worth the 3% performance improvement.

A 20G-byte Ultra ATA/66 hard drive will handle Windows XP Professional, Office XP, a half dozen programs and a ton of data. Your digital video editors will need a much larger, separate ATA/100 drive for their video data.

These guidelines will meet your basic needs — but only for today. To provide for tomorrow's needs, increase these requirements by 50%. However, only you and your teleworkers really know what's right for them. Some people are content

See **Top 10**, page 26

# Multinetwork Manager eases multiple LAN access

BY PAUL FERRILL

Whether you telework part time or visit client sites regularly, if you rely on a Windows-based laptop to connect to multiple networks, you probably spend a fair amount of time changing network settings to access the local LAN. You boot up the laptop, make changes to accommodate your new network, reboot and hope you didn't make any mistakes. Globesoft's Multinetwork Manager, a utility from Globesoft, wins back that time by saving and managing multiple configurations for you. And net managers will appreciate the ability to preconfigure network settings and apply them to remote machines.

### One-time boot up

While it doesn't handle all the situations requiring a change of settings, Multinetwork Manager takes care of the common ones quite well. Globesoft has taken a practical approach to administering the product; once you have your Windows 95, 98, NT, Millennium Edition or 2000 machine configured for a location, you simply save the settings and give the

See **Multinetwork Manager**, page 26

## NetResults

REVIEW
Network management

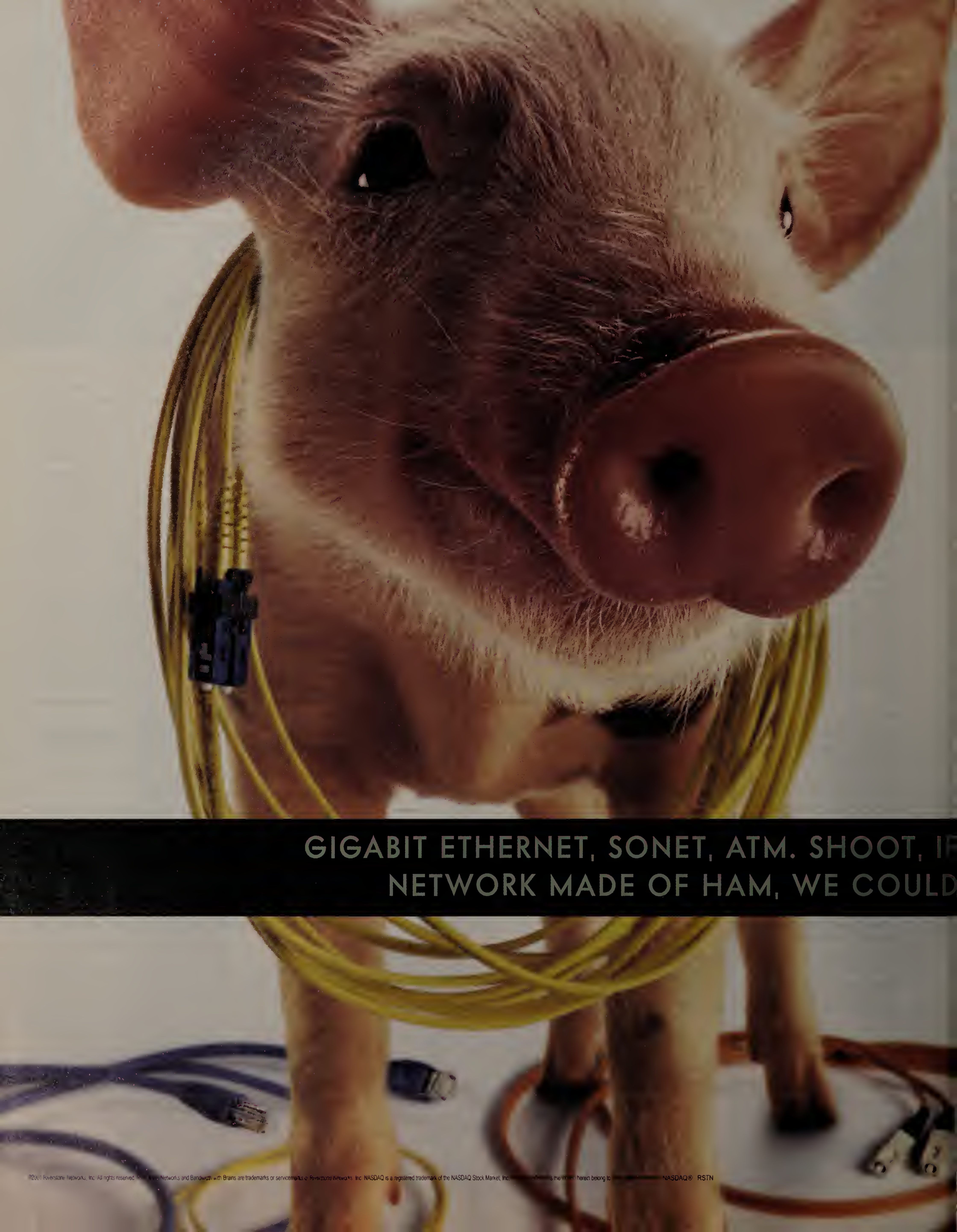
### Multinetwork Manager Version 5.5

**RATING:** 3.95 **COMPANY:** Globesoft, www.globesoft.com **COST:** $36 for one to nine users; quantity discounts available. Price includes 12 months of upgrades and support. **PROS:** Changing network settings is a snap; simple user interface with lots of options. **CONS:** Doesn't handle Novell NetWare settings for Windows NT or 2000 systems.

**Scoring key: 5: Exceptional showing** in this category. Defines the standard of excellence; **4: Very good showing.** Although there may be room for improvement, this product was much better than average; **3: Average showing** in this category. Product was neither especially good nor exceptionally bad; **2: Below average.** Lacked some features or lower performance than other products, or than was expected; **1: Considerably subpar,** or lacking features being reviewed.

ScoreCard

| | Functionality 30% | Administration 30% | Ease of use 20% | Installation 15% | Documentation 5% | Total score |
|---|---|---|---|---|---|---|
| **Multinetwork Manager Version 5.5** | 4 | 4 | 4 | 4 | 3 | 3.95 |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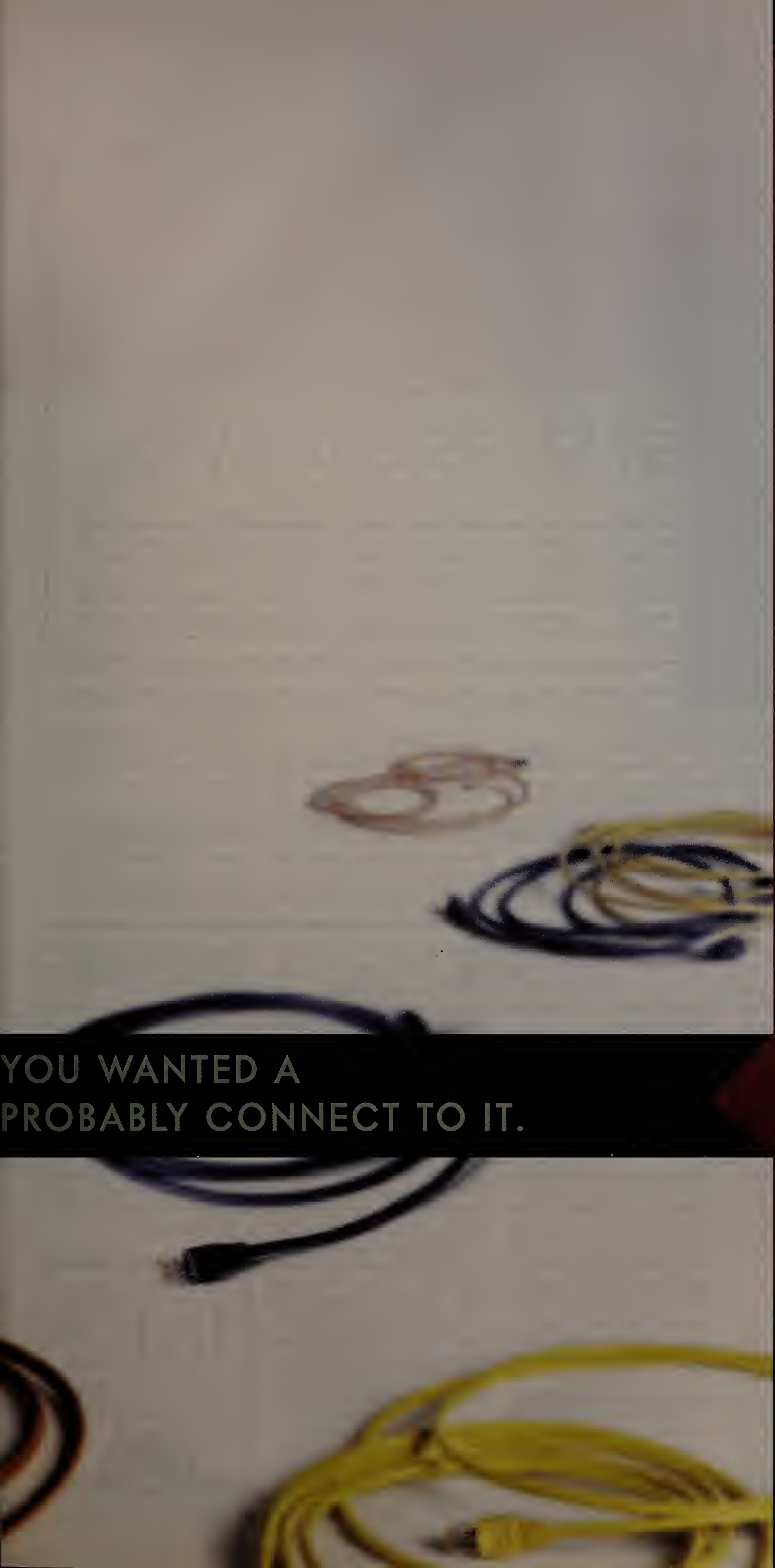

Not just connect to it, but deliver profitable services *over* it. At Riverstone Networks, our RS family of routers delivers wire-speed metropolitan area services over any network, including Gigabit Ethernet, 10-Gigabit Ethernet, SONET/SDH, ATM, WDM, TDM, and cable. In fact, Riverstone routers convert raw bandwidth into profitable services in all parts of the Metropolitan Area Network. Whether it's dynamic bandwidth provisioning, MPLS-based VPNs, tiered services, or anything in between, Riverstone customers profit from intelligent bandwidth on both legacy and next generation networks. All Riverstone technology scales across the entire product line, from our compact RS 1000 Optical Metro Access Router, right up to the RS 38000, our 170 Gigabit Metro Core Router. To build a network that really brings home the bacon, contact Riverstone at 1-877-778-9595, or visit riverstonenet.com/nww.

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### Telework Beat . Toni Kistner

# ITAC RISES TO THE OCCASION

Regular Net.Worker readers know I have a love-hate relationship with the International Telework Association and Council. Once a relatively small, niche association, the technology boom has thrust ITAC into the spotlight as the leader and authority of what's become a mainstream telework revolution. And while the association does a good job articulating the business issues of telework, it's been less equipped to tackle technology issues and hasn't always known what to make of us. There's even been a bit of rumbling that ITAC's lack of savvy and anemic budget could leave it potentially vulnerable to rival organizations eager to fill the gap.

Well, forget all that. The recent appointment of Chuck Wilsker as executive director is sure to put ITAC back on track. Wilsker is a 30-year telecom industry veteran who contends, "If it weren't for technology — the proliferation of PCs, broadband and the Internet—there wouldn't be any telework."

He's also a telework industry insider; longtime ITAC member; president of the Mid-Atlantic Telework and Advisory Council; and belongs to a laundry list of telework and transportation organizations.

But as important, he's a career sales and marketing vice president with recent stints at Global Communications, Vitel International, and CapuNet, a Rockville, Md., ISP. As such, he plans to take "a sales and marketing approach to ITAC." Plans include redesigning the ITAC Web site, developing more case studies of successful telework programs and helping industry members better communicate with people outside the business.

Wilsker also wants to break from tradition, to "get rural towns on the bandwagon, promote virtual call centers, and increase jobs for the disabled and older workers," Wilsker says.

But his first order of business is gearing up for ITAC's annual conference, held this September in Kansas City, Mo. This year, ITAC's teaming with International Facilities Management Association (IFMA), a group devoted to the "practice of coordinating the physical workplace with the people and work of the organization."

Wilsker plans to raise attendance by attracting IFMA attendees, the Kansas City business community, as well industry associations. "In the past, telework events seem to be of, for, by and directed to the telework community," he observes. "While they're always well done, that's preaching to the choir. If we're gonna get people to jump on the telework bandwagon, we have to go after people who don't do it."

If you want to attend the conference, or what Wilsker calls a "trade show" (bless him!), head to www.telecommute.org. Jeff Zbar and I will be there beating the Net.Worker drum. Send me an e-mail if you want to hook up and talk telework in Kansas City.

*Kistner is managing editor of the Net.Worker section. She can be reached at tkistner@nww.com*

**Multinetwork Manager,**
continued from page 23

profile a name. When you arrive at the next location, you adjust the network settings and create a second profile, and so on. Each profile appears as a tab on a configuration page for easy access, and once a configuration is working properly, you're given the option to lock the settings to prevent accidental change. If you need to edit the settings, simply unlock the tab before doing so.

Multinetwork Manager offers many options for changing settings. Upon installation, a small icon appears in your system tray. One click and the application's control panel appears, which lets you create a new profile or activate an existing one.

My favorite feature is Boot Time Application, which helps reduce the number of reboots. Once you've created a few profiles, upon start up at a new location, the application prompts you to accept the default profile or select another. Choose one and no second reboot is needed.

If you use a docking station with your laptop, you'll want to use the enable/disable adapter feature to link a profile with the right hardware adapter, so you'll automatically boot to the right configuration.

Multinetwork Manager also supports changing Microsoft Outlook settings, mapped network drives, default printers and start-up programs. With the Start-up tab you can have Multinetwork Manager run any program at startup. User profiles can be shared on NT/2000 but not on Windows 9X or Millennium Edition. That means under NT, you won't need separate configurations for multiple users of the same laptop.

The Multinetwork Manager settings page lets you control how the program operates. Options include "Always in System Tray," "Enable boot configuration selection," "Timeout after X seconds" where X is user-selectable, "Disable Scandisk," and "Boot Time Application reload for Workgroup." There's also an option to enable a log file for troubleshooting.

The HTML help files offer examples of how each option is used. I especially like the help files' use of colored text to highlight important points or limitations. However, the HTML navigation could be better — all the help is contained in one large file headed by a list of hyperlinked topics.

### Almost, but not quite

Multinetwork Manager's current version, 5.5 — the first we've seen in the U.S. — has a few nits we'd like to see picked. If you use different corporate e-mail configurations, like multiple Exchange Server names, you won't be able to make those changes with the current release. Multinetwork Manager also doesn't support switching Novell network settings on NT or 2000 machines.

The next version is supposed to add enhanced TCP/IP support, wireless-specific settings such as changing the service-set ID, extended VPN support, and additional functionality in the import/export area. But because Multinetwork Manager includes 12 months of upgrades, there's no reason to wait for the next release.

### How we did it

We installed Multinetwork Manager on a Dell Latitude LM laptop equipped with a Xircom CEM 56 modem and 10/100 network card. The machine runs Windows 98 Second Edition and has 40M bytes of memory. We also used a Linksys wireless Ethernet card to test the multiple profile features.

We tested the product by setting up multiple network connection profiles and then connecting the laptop to the separate networks.

*Ferrill is a freelance writer based in Lancaster, Calif. He can be reached at paul.Ferrill@verizon.net.*

**Top 10,**
continued from page 23

chugging away on an old 266 MHz Pentium II.

### Lease vs. buy

At first glance, leasing might seem more expensive, but there are hidden costs in buying, including the cost of remote teleworker support. Trying to extract every penny from the equipment while ignoring lost productivity isn't cheap, either. So commit to regular upgrades, or lease. At least when you're leasing, everyone knows when they'll receive an upgrade. And at least one state is reimbursing the leasing cost of teleworking equipment, so keep your eyes peeled for other such bargains. (www.nwfusion.com, DocFinder: 4825)

It used to be that when you purchased a computer, it was yours, problems and all, whereas leasing meant paying higher prices, but gaining the peace of mind of dedicated support. Now the lines between leasing and buying have blurred.

Dell and EDS, for example, have partnered to provide Seat Management Service. For less than $100 per workstation per month, they'll take over the most time-consuming and expensive duties of ownership. That's pretty good when you consider that Gartner estimates the cost of the original system is only 12% of the total cost of ownership. With this approach, you get the support of leasing, with the cost-savings of buying.

If your information systems department can beat this price, consider central management involving a VPN extranet and broadband. And don't get locked into the "asymmetric DSL [ADSL] is better" mindset, either. Cable modem customers used to be on hubs, but now many connections are routed. Cox Cable also recently raised the throughput to 1.5M bit/sec in my area to keep the ADSL vendors from scooping up their customers. Search for similar bargains in your area.

Before you make your next big purchase, make sure you count all the costs, not just the easy ones.

Next story: Managing teleworkers' voice connections

*Janss is president of Jansys Information Systems, a consulting firm specializing in IS technologies for small businesses. He can be reached at bizcom@jansys.com.*

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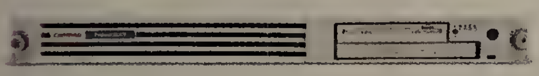

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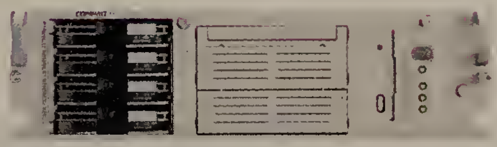

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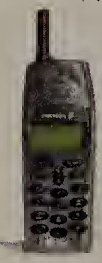

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ARRIVE SAFELY

# Carriers & ISPs

***The Internet, Extranets, Interexchange and Local Carriers, Wireless, Regulatory Affairs***

## Briefs

**AT&T** and **British Telecom's** international joint venture, **Concert**, last week introduced updated service guarantees for customers using its data and Internet services. The service provider now guarantees 100% service availability in its 251 markets and that it will meet predefined installation dates. If service is not available for any hour within a month, a customer will be credited the equivalent of a day's worth of service. For each day a service is not installed, a customer will be credited a day's worth of service.

Concert: www.concert.com

**Level 3 Communications** last week announced it will lay off 1,400 employees, or about 24% of its workforce. While the company's revenue rose from $177 million in the first quarter of 2000 to $449 million in the first quarter of this year, net losses increased from $271 million in the first quarter of 2000 to $535 million in the first quarter of this year.

Level 3 is building an international IP network that should be completed in four to six years, the company says. The company also leases circuits to telecommunications providers. Level 3 also announced it will concentrate more on established companies instead of start-ups and focus on the growing demand for the company's core business, including high-speed private lines.

**Metromedia Fiber Network** announced last week that Web search engine company **Google** is now using its collocation services. Google is collocating its servers at MFN data centers in McLean, Va., and San Jose. Google collocates its search engine servers at a handful of facilities. MFN would not comment on the terms of the deal.

# Verizon expands managed WAN

*Customers need not use Verizon as their access provider.*

BY MICHAEL MARTIN

Verizon recently introduced a nationwide managed WAN offering designed for large corporate customers.

The managed network service includes two pieces: Verizon FrameWatchSM for frame relay networks and Verizon SiteWatchSM for data edge devices including routers, switches and hubs. Both services include installation, upgrades, maintenance, monitoring and management.

Verizon monitors all managed services customers from a centralized network operations center and resolves any customer problems, including dealing with other service providers on a customer's behalf.

"Any issues that crop up, we own from beginning to end," says Tom Dalrymple, director of managed data services for Verizon's Enterprise Solutions Group.

What sets Verizon's managed network offering apart from comparable products from other service providers is that customers don't have to use Verizon as their access provider, says Kathleen Adams, a Gartner analyst.

"Most large providers offer managed services, but they're typically only available to their own customers," she says.

The majority of customers that have registered for the managed network service are Verizon access customers as well, Adams adds.

Although Dalrymple would not say

See **Verizon**, page 32

# Firewall on demand part of new eTunnels service

BY TIM GREENE

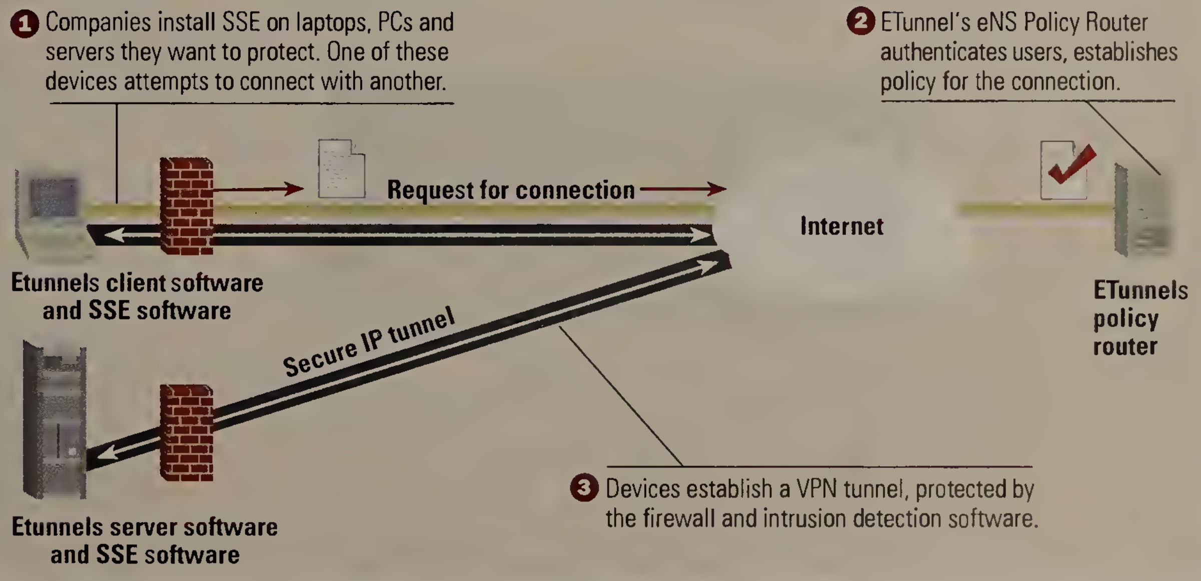
*SEATTLE* — VPN service provider eTunnels this fall will add a firewall service to its current VPN offering, further simplifying the work that corporations must complete to set up network security.

ETunnels already sells a service called VPN on Demand that supplies tools to set up and manage VPNs for intranets as well as tools for establishing links to business partners.

The service, to be called Firewall on Demand, will provide firewall gear and management tools. Customers will be able to buy VPN on Demand and Firewall on Demand separately.

### Another brick in the wall

**ETunnels will soon offer firewalling and intrusion detection as an add-on to its existing VPN service via an alliance to use Sygate's Secure Enterprise (SSE) software.**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Etunnels client software and SSE software
Secure IP tunnel
ETunnels policy router
Etunnels server software and SSE software

❶ Companies install SSE on laptops, PCs and servers they want to protect. One of these devices attempts to connect with another.

❷ ETunnel's eNS Policy Router authenticates users, establishes policy for the connection.

❸ Devices establish a VPN tunnel, protected by the firewall and intrusion detection software.

VPN on Demand is based on eTunnels' own software, but the new service will be based on new, centrally managed firewall gear made by Sygate called Sygate Secure Enterprise (SSE) 2.0. This Sygate software includes intrusion detection, which will also be part of the Firewall on Demand Service, says Ralph Puga, eTunnels' director of product planning.

Customers that buy the eTunnels service will be able to set firewall policies via Web access to a server that hosts SSE 2.0 management software in an eTunnels network operations center. ETunnels says it will customize the software to give it the same look as its own VPN on Demand management software.

ETunnels supplies its customers with software clients for PCs and workstations as well as for servers that operate as VPN gateways to large corporate sites. With Firewall on Demand, eTunnels will provide firewall software for the same devices. This approach gives every PC that links to a VPN its own personal firewall, protecting it from becoming a weak security link subject to attack from intruders, says Chris Christiansen, an analyst with market research firm IDC.

While eTunnels is pushing the firewall aspect of the Sygate software, Sygate says SSE 2.0 contains so many security-policy options that it can block attacks that have never been seen before. Network administrators can design policies that bar individual transactions that an intruder would need to cause harm or steal data, Sygate says.

The Sygate software on PCs can be locked down by network managers so end users cannot tinker with policy settings or turn off the firewall altogether. It also periodically checks with the central firewall policy server to receive

See **eTunnels**, page 32

# THE NATIONAL E-BUSINESS INFRASTRUCTURE

## Pop Quiz

01. What is an e-business infrastructure?

- ⓐ *I don't know*
- ⓑ *the foundation for a closed enterprise*
- ⓒ *the inside structure of four walls*
- ⓓ *intranets, extranets, servers, storage, software; everything that connects employees to customers to suppliers to partners*

02. A well-thought-out infrastructure is necessary for...

- ⓐ *handling 2 billion transactions a minute*
- ⓑ *instant collaboration*
- ⓒ *designing, building, launching and delivering a new model of automobile*
- ⓓ *all of the above*

03. What scenario best describes this photo?

- ⓐ *forgot to order mineral water*
- ⓑ *mispronounced German client's last name*
- ⓒ *made the evening news...in a bad way*
- ⓓ *learned that his infrastructure could not scale to meet new customer demands*

04. A shipment of steel alloy is traveling 100 miles to point X at 75 mph. A shipment of plastics is traveling 86 miles to point X at 65 mph. Which will arrive first?

- ⓐ *the one pulled by the newest locomotive*
- ⓑ *the one with the lightest load*
- ⓒ *they both arrive at the same time because they were connected to the same reliable back-end infrastructure*

05. Complete this sentence in the pluperfect:

Our infrastructure failed because________integrating multiple platforms and protocols.

- ⓐ *we're having trouble*
- ⓑ *we have had trouble*
- ⓒ *we have trouble*
- ⓓ *we had had trouble*

06. A well-planned e-business infrastructure helps supply chains...

- ⓐ *count presidential ballots*
- ⓑ *stock Mt. Everest base camps*
- ⓒ *plan festive holiday parties*
- ⓓ *replenish inventories on demand*

---

Answers

01. d 02. d 03. d 04. c 05. d 06. d 07. c 08. d 09. d
10. c 11. d 12. d 13. / 14. d 15. c

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# @ business infrastructure

07. How should you implement an e-business infrastructure?

ⓐ *deploy, debug, strategize*
ⓑ *install, deploy, retrofit*
ⓒ *strategize, test, deploy*
ⓓ *panic, spend, weep*

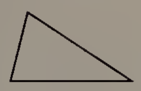
08. What does it take to maintain a secure infrastructure?

ⓐ *universal password protection*
ⓑ *test your own system for vulnerabilities*
ⓒ *build a redundant security that frustrates hackers*
ⓓ *all of the above*

09. The most important action when merging two different companies' IT systems is:

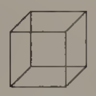
ⓐ *a pep rally*
ⓑ *celebrate the merger with a commercial*
ⓒ *expensive and tedious "workarounds"*
ⓓ *adopt open standards*

10. Which of the following best represents a well-implemented infrastructure?


ⓐ

ⓑ

ⓒ


ⓓ

11. Infrastructure is to profit as:

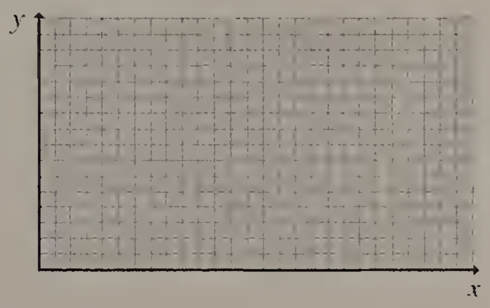
ⓐ *speed is to wireless*
ⓑ *customer is to sale*
ⓒ *capacity is to server*
ⓓ *all of the above*

12. Venture capital is most likely attracted to start-ups with:

ⓐ *the best logo*
ⓑ *those who have failed before*
ⓒ *MBAs who wear sandals*
ⓓ *business plans that take into account 1 billion mobile users worldwide*

13. Complete this graph:

*x equals the amount of abandoned online shopping carts*
*y equals the delays attributed to an online store's sluggish servers*



14. The most complex infrastructure challenge for mobile e-business is:

ⓐ *reducing Web page sizes for PDAs*
ⓑ *responding to a billion wireless devices*
ⓒ *reconciling 30 different platforms, including Bluetooth, WAP and Palm*
ⓓ *all of the above*

15. How do you know you're ready for IBM?

ⓐ *they're having a sale*
ⓑ *you overheard people talking about them at a business dinner*
ⓒ *you realize infrastructure is the biggest and single most important issue of this decade*
ⓓ *you need a supercomputer to defeat a chess master*

---

THIS WAS ONLY A POP QUIZ. The real test is extremely difficult. And you may not have a lot of time. That's why you need to know as much as you can about e-business infrastructure now. It's complicated, complex and a hard concept to grasp. If you don't understand it fully, you want a partner who does. Someone like IBM that has the knowledge, resources and experience of having built solid infrastructures in your industry. Call 800 426 7080 (ask for infrastructure) or head to **ibm.com**/e-business

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Eye on the carriers . Lisa Pierce

# USE OF WEB SERVICES RAISES WAN ISSUES

Widespread adoption of Web services will likely increase use of the WAN by corporate network customers.

The increase will be due to the very nature of Web services, whereby applications are viewed as a conglomeration of "business services" that communicate with other applications over Internet-based protocols on either an intracompany or intercompany basis. Web services assume seamless integration between software applications and/or business processes, and require connectivity between a wide range of systems, individuals and organizations, often in diverse locations.

Clearly, the appearance of seamlessness requires WAN connectivity that has low network latency and congestion, and high availability. Unfortunately, this does not describe the performance of today's Internet. Private intranets, or extranets on private IP networks, are feasible alternatives, but prices are high and availability is low compared to the public Internet.

Giga Information Group expects public and private IP-based network performance to improve. However, we still anticipate that the performance of private IP-based networks will continue to surpass that of the Internet.

The connected nature of Web services in turn implies the following:

- Customer spending on WAN resources will escalate.
- Customers will continue to require the relative price/performance of IP-based WAN services to improve along parameters such as availability, latency and loss. This is particularly critical for business-to-consumer e-marketing, e-commerce and mobile commerce applications that use the Internet.
- Sites that provide Web services applications may require extensive use of alternate WAN providers to achieve near 100% availability. Redundant access will often be required, increasing the cost of Web services.

Recommendations for customers considering Web services include:

- IT should work closely with business units to understand the security and architectural impact of Web services applications on use of the LAN and/or WAN.

The nature of some applications will require use of the public Internet and will be inadvisable for others.

- Customers should consider using multiple WAN providers to ensure high network availability and performance.
- Because Web services communicate via XML, customers should factor in the potential impact of large XML messages on the WAN. When accounting for XML messages, parsing/deparsing overhead must be added to the transmission time.
- To compensate for WAN latency, many users favor compressing XML, particularly when the CPU overhead required for compression is less than the latency. However, XML compression can slow fast WANs and LANs, which could put pressure on IT managers to increase WAN bandwidth.
- Finally, applications design should be considered, as short XML messages may create more of a WAN headache than fewer larger messages.

*Pierce is a research fellow at Giga Information Group. She can be reached at lpierce@gigaweb.com.*

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**Verizon,**

continued from page 32

how many customers Verizon has signed up for the service, he said the provider manages more than 6,500 devices. He expects that number to grow quickly.

"Our percentage growth in this business is large," Dalrymple says. "The degree of technological change is rapid, and customers have trouble keeping up. Getting employees with the skills to manage networks is also tough."

Verizon believes many corporate customers will appreciate having a neutral third party manage their WAN connections. For example, some companies may not trust their access provider to serve up reliable performance data, Dalrymple says.

Another differentiator, Verizon says, is its integrated management system, which consists of industry-standard tools from vendors such as Micromuse.

It typically takes Verizon 30 seconds to identify a problem, diagnose it and alert a customer, Dalrymple says.

Before launching the new service, Verizon provided managed network offerings through Bell Atlantic and GTE. However, even when combined, the two companies' services didn't have the coverage breadth of the new nationwide offering.

Verizon's managed network offerings are available immediately. Pricing varies depending on the number of devices in a customer's network and the complexity of each device.

Verizon: www.verizon.com

www.nwfusion.com

MANAGED WANS

Go online to read a report about managed network services and service providers.

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find it online

**eTunnels,**

continued from page 32

updated software or policies. At the same time, it shares log data that can be used to generate reports on traffic passing through and attempting to pass through the firewall. Network administrators can use these reports to spot attempted attacks.

With the current release of SSE 2.0, users would have to use Windows machines, but the company says that within a year it will include support for other operating systems, including Linux. ETunnels services require Windows NT servers and Windows PCs. Sygate also plans to support handheld devices such as PDAs so they can be protected from attack when they are linked to corporate networks.

ETunnels will introduce Firewall on Demand this fall.

ETunnels: www.etunnels.com

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# Satellite Internet: Wireless medium looks for a niche

BY GEORGE CHIDI JR.

### SATELLITE 'NET COMPANIES

**Plans revolve around exploiting limitations of land-based broadband.**

The prospects for satellite Internet services have been seen as pie in the sky for the most part. That may be changing ever so slowly however, as space companies and telecommunication start-ups begin to put meat on the bones of their business plans and take aim at untapped markets, especially in remote areas.

A handful of companies already offer Internet services over satellite, although none at speeds that are comparable to a fast landline. However, several space companies have plans to launch anywhere from four to 64 satellites and beam the Internet at broadband speed to waiting receivers.

Teledesic — funded by Motorola, Boeing, Bill Gates and Saudi Prince Alwaleed Bin Talal — intends to launch services in 2005 using a constellation of small, low-Earth orbit satellites. Start-up Astrolink International, backed by Lockheed Martin, plans to launch a geosynchronous orbit satellite in early 2003.

Existing services such as those from Tachyon have download speeds ranging from 128K bit/sec to 1.544M bit/sec, and upload speeds to the satellite ranging from 64K bit/sec to 256K bit/sec. StarBand Communications has services offering downloads of 500K bit/sec and uploads of 150K bit/sec. The speeds compare to those for DSL, although the costs do not.

Analysts say a 2-foot-wide dish similar to one used for satellite TV reception but capable of two-way communication will cost around $600 to $900, with installation running about $250. Subscription costs will start at $70 per month for basic services.

Chances are slim that do-it-yourself installation packages for two-way satellite broadband dishes — which would cut installation costs — will come to market soon, as has happened with DSL. The Federal Communications Commission insists that licensed professionals must install such devices to prevent accidental interference with other transmissions.

### Earth-based competition

Satellite providers say they will be able to add subscribers much faster than their land-based competition, and can update their services more easily.

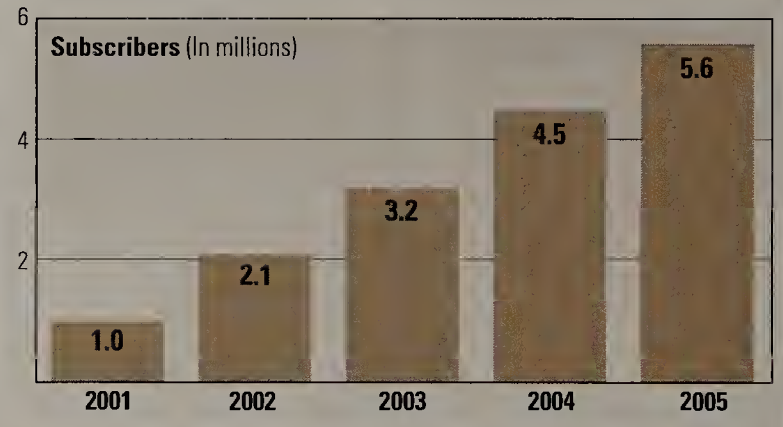
"Most of the people we're talking to want to build a private network," says Jeff Guzy, executive vice president and general manager for broadband deployment at CyberStar, a subsidiary of Loral Space and Communications.

Ease of procurement is a big selling point, according to Guzy.

There's no need to roll out fiber, or check the quality of the lines, or deal with an incumbent local carrier to access phone equipment.

**Satellite service adoption**

**The Yankee Group predicts that users will buy satellite services at a steady rate over the next five years with more than 5 million signing up for direct broadcast satellite services that companies such as StarBand are offering.**



Satellite services will also be able to provide bandwidth on demand, charging customers only for the amount of data downloaded each month. Applications requiring short bursts of heavy data downloads may make best use of these services, according to the vendors.

One drawback: Satellite services must yield to the laws of physics, in particular the speed of light.

A satellite in geosynchronous orbit is 44,000 miles from Earth. The distance the signal must travel results in latency of between one-third and one-half second, making it less useful for things such as phone service, videoconferencing, interactive gaming or applications dependent on real-time data.

### Ideal for far-flung offices

For companies with operations far from comfortable metropolitan fiber-optic rings and a giant phone company with armies of technicians around the corner, the satellite dish may be the answer. But, in all likelihood, they will appeal only to companies where landlines are not available.

"A major question mark is cost," says Paul Kellett, a senior research analyst at Pioneer Consulting. "There are parts of the world where there's nothing to compete with, though."

Another analyst sees the great wilderness as a frontier for satellite services.

"The only business use for it is in far-flung places," says Brownlee Thomas, a global telecommunications services analyst for market research firm Giga Information Group. "It's always going to be a gap filler."

Still, it's a big gap. Gartner's market analysis firm Dataquest released a study in February forecasting an increase in the number of installed satellite terminals from 293,500 last year to 7.2 million terminals in 2005.

The large phone companies responsible for most DSL service in the U.S. have little financial incentive to make every one of their central offices ready for DSL, a gap satellite companies hope to exploit, according to Tony Modelfino, a vice president of services and applications at Astrolink.

"Every technology has its sweet spot, a geographic sweet spot," he says.

"There are about 20,000 central offices in the U.S.," Modelfino continues, and a DSL provider "can get to 80% of the businesses by going after 20% of those central offices."

### Location affects provisioning feasibility

However, satellite has its own provisioning issues. Because the FCC demands professional installation, the only places in the U.S. able to get satellite service installed are those that a technician can reach economically.

"We're really targeting an enterprise market, not a consumer market," Modelfino says. "If I'm doing $50 per month" in subscription charges for consumers, "I have to think long and hard about doing a truck roll."

Astrolink is aiming at small branch offices at out-of-the-way locations. Astrolink plans to launch its first satellite in 2003, indicating a belief that the provisioning challenges for competing technologies will still be there by then. The company figures between 20% and 30% of the market will have no affordable broadband alternatives.

The question that industry watchers ask now is if satellite broadband services will encounter the same kinds of problems the rest of the Internet industry has experienced. Will too many people be trying to get service from the same place at the same time, like the early days of AOL? Will over-investment — without an immediate way to recoup costs — drive margins down and players out of business?

If phone companies find a way to easily get their unused fiber-optic capacity into the workrooms and bedrooms of their customers before satellite companies come online, it could be an ugly end for an expensive trip.

*Chidi writes for IDG News Service's Boston bureau.*

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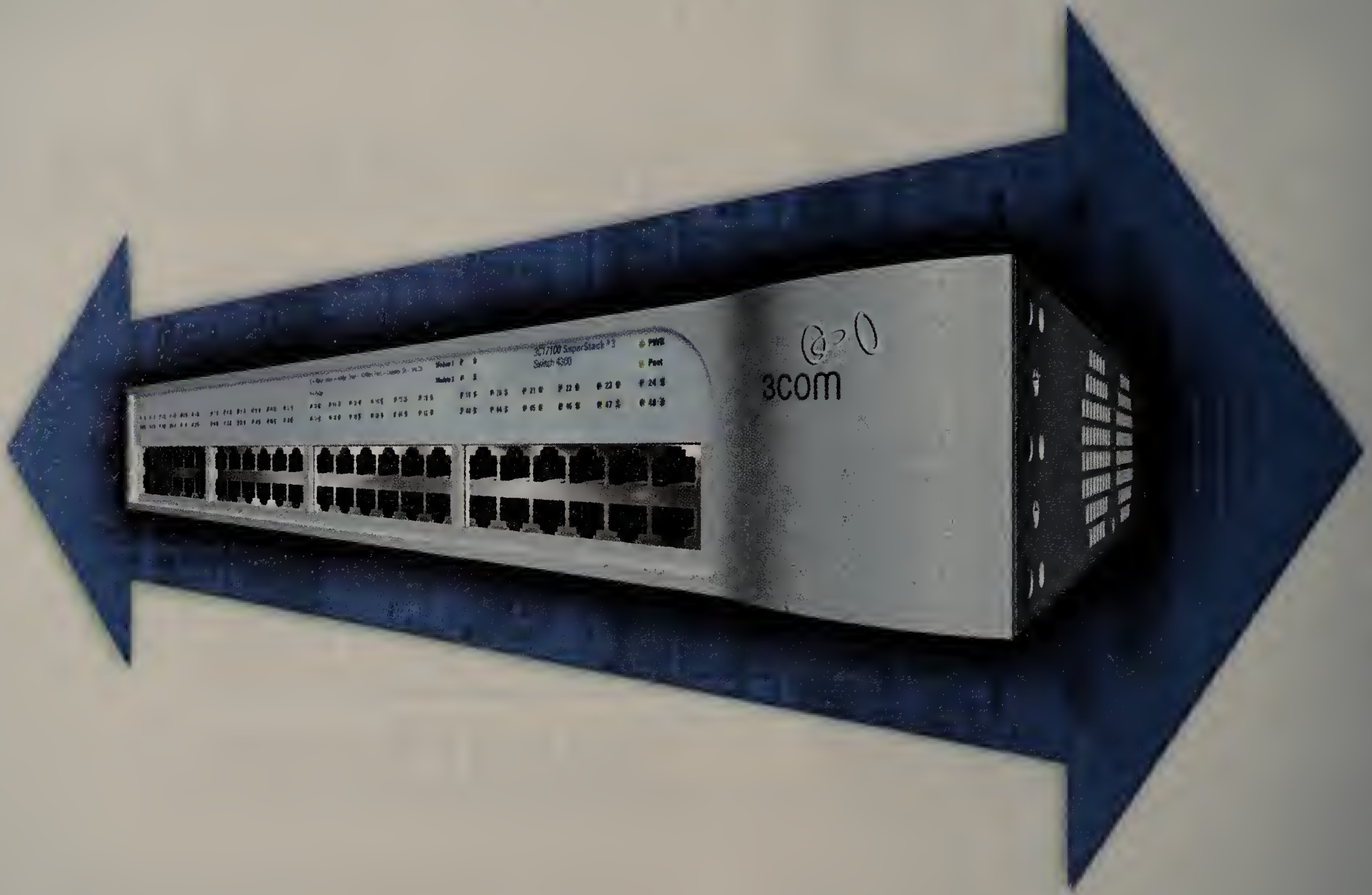

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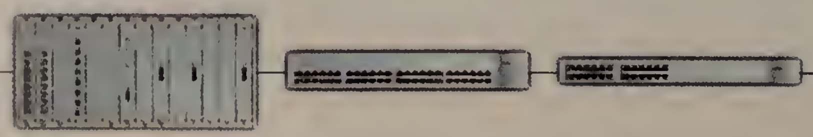

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# The Edge

*Service provider developments at the juncture between the enterprise and the new public network*

## Briefs

Managed network services company **Valiant Networks** announced the resignation of CEO T.J. Fitzpatrick and a reduction in staff.

The company, which designs, integrates and manages networks (www.nwfusion.com, DocFinder:4835), said the moves were made in response to the industry downturn and a desire to reach profitability. Wayne Price, CTO and company founder, has been named the new CEO.

Valiant staff reductions primarily affected marketing and noncore functions. Company spokespeople would not say how many staffers were let go, but said figures in published reports — 41 of 137 employees — were both "accurate" and "inaccurate."

Valiant: www.valiantnet.com

Start-up **WaveSmith Networks**, a maker of multiservice ATM switches, said it secured $31 million in second-round financing, with Fidelity Ventures as the lead investor.

WaveSmith's A-round investors — Bessemer Venture Partners, Atlas Venture and Commonwealth Capital — also contributed to the company's second round. The funding will be used to continue the development of its multiservice switching product line, as well as prepare for general availability in the fourth quarter, the company says.

WaveSmith also plans to continue to expand the sales and support organizations on a national and global level.

WaveSmith is making ATM switches for the edge of service provider networks that will go up against Lucent's GX and CBX switches.

WaveSmith: www.wavesmith-networks.com

# CWDM and PON: Do they compete?

*Cost, bandwidth issues loom large in optical access alternatives.*

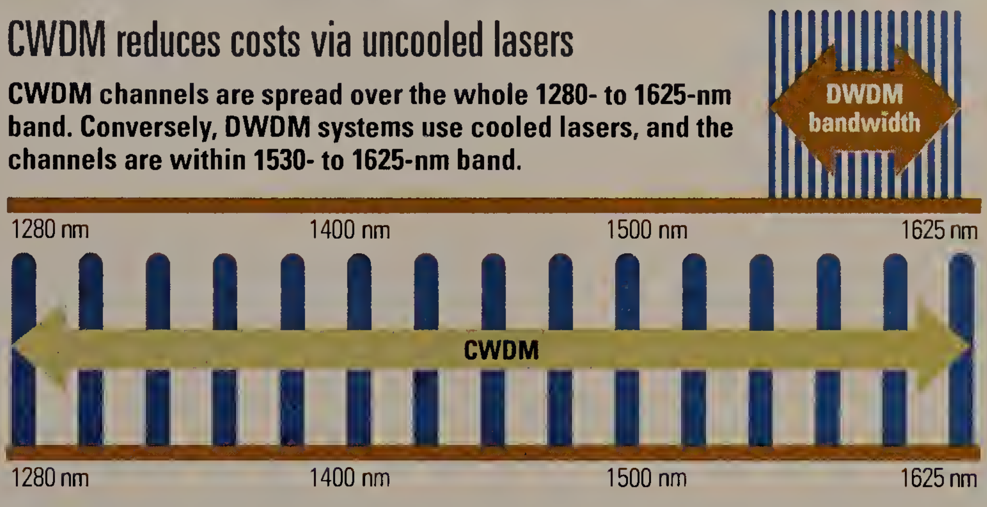
BY TERRI GIMPELSON

Although both are positioned as low-cost optical access alternatives, passive optical networks and coarse wavelength division multiplexing are complementary technologies that together can maximize fiber efficiency, analysts and vendors say.

PON is a point-to-multipoint optical network that uses existing fiber. Its cost savings come from using passive devices in the form of couplers and splitters, rather than higher-cost active electronics.

CWDM is a type of wave division multiplexing in which uncooled lasers are used to overlay optical light channels in a pipe. The use of uncooled lasers reduces cost, compared with dense wavelength division multiplexing (DWDM), which uses cooled lasers.

In CWDM, channels are spaced farther apart than in DWDM systems. But CWDM can only scale up to five or six wavelengths, vendors and analysts say.


**CWDM reduces costs via uncooled lasers**

**CWDM channels are spread over the whole 1280- to 1625-nm band. Conversely, DWDM systems use cooled lasers, and the channels are within 1530- to 1625-nm band.**

SOURCE: TSUNAMI OPTICS

"Access is a special domain," says Barry Moon, senior analyst at RHK. "It is usually single-customer focused, and the cost of service has to be paid for by the specific revenue from the services. Although CWDM is nonstandard, it is the most cost-effective method of adding bandwidth to a building or group of buildings."

But Moon adds that CWDM may not be for everyone. Although CWDM can be used to add channels to a PON in cases of limited bandwidth, its nonstandard status will not appeal to some users.

"Every vendor has its own version," Moon says. "Some of the initial PON vendors changed their minds [about using CWDM] after some thought and are using DWDM as an option, but at a much higher cost."

Even though CWDM is being marketed as a low-cost optical access alternative, it will be more costly for users to deploy over time because of its inability to scale beyond five or six lambdas, says PON vendor Quantum Bridge Communications.

"CWDM is so limited in its scalability, that in the long term it will cost more," says Jeff Gwynne, a vice president at Quantum Bridge. "PONs expand the number of endpoints and increase the capacity of the fiber. PONs leverage existing fiber to deliver high-bandwidth services to businesses. WDM over PON expands the number of wavelengths on the fiber. That's where the real competition is. It's between CWDM and WDM."

But PONs are limited in the amount of bandwidth they can support, admits PON vendor Terawave Communications. Users requiring a gigabit or more of bandwidth will have to opt for some type of WDM, the company says.

"CWDM is only good for big businesses with a need for high-bandwidth services beyond one gigabit," says Josh Chen, a marketing executive at Terawave.

Adding xWDM to a PON increases carrying capacity whereby each

See **CWDM and PON**, pag

# Signs of optical signal clarity

*Phaethon preps modules for dispersion compensation at 10G, 40G.*

BY JIM DUFFY

*FREMONT, CALIF.* — As the industry moves closer to 40G bit/sec transmission speeds across longer distances, degradation of optical signals along a fiber span becomes more of a concern.

One company says it has the solution to signal integrity at tomorrow's 40G bit/sec rates and today's 10G bit/sec speeds. Phaethon Communications, an 18-month-old start-up, was founded to develop products to combat all forms of dispersion — the degradation of optical signals that results in network transmission errors.

Phaethon's weapon is a patented technique for etching fiber Bragg gratings into optical fiber to increase the accuracy and efficiency of dispersion compensation, as well as "tune" the fiber for changing network requirements. Fiber Bragg gratings act as filters, selectively reflecting and redirecting wavelengths while transmitting others.

Phaethon plans to unveil a line of chromatic dispersion compensators for 10G bit/sec networks that can also be applied to 40G bit/sec optical systems once the market for OC-768 emerges. These compensators, called ClearSpectrum, will feature the company's patented "tunable" fiber Bragg gratings.

"I believe their approach is to be able to put in dispersion compensation along the

See **Phaethon**, page 38

www.nwfusion.com

DISPERSION DISCUSSION

Find out how other vendors are handling dispersion in optical nets.

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# All Optical transistors could upend computing

*Start-up delivers more modest product first, though.*

BY TIM GREENE

*SAN DIEGO* — Start-up All Optical is sitting on top of patents that could potentially alter the basics of computing, but for now are focused on a multiplexer that can cut the costs of setting up optical metropolitan-area networks.

The company holds patents on the concept and technology for photonic transistors, devices that would act like conventional transistors, but use light instead of electricity to drive them. This technology could lead to photonic processors that could operate faster than current processors.

"This would create a fundamental change in processing if they pull it off," says Victor Valdevia, an analyst with Hudson River Analytics.

The technology was conceived by All Optical's chief science officer John Hait in 1989. Hait and others developed the technology until last year, when All Optical was formed to commercialize it. It employs holograms — representations of light interference patterns — to create photonic transistors that amplify, switch or detect light signals.

Arrays of these transistors can create integrated photonic circuits that can perform logic functions the way electronic transistors can in traditional processors. The main advantage of photonic transistors is speed, All Optical CEO Ralph Bennett says.

Bennett, who was a founder of Mitel Semiconductor, RSA Security and PMC Sierra, retired in 1996. But when he saw the technology Hait and the others had, he came out of retirement to sign on as All Optical's CEO.

This spring, Japanese researchers at the National Institute of Advanced Industrial Science and Technology developed a photonic transistor using different technology. But Valdevia says All Optical is closer to commercially manufacturing its transistor.

Before it delivers an optical transistor, though, the company is selling a more pragmatic device called MetroScout, which multiplexes 1310 nm, short-haul optical signals without having to convert them to 1550 nm signals, cutting the cost of such multiplexing in half, according to Bennett.

Until MetroScout, multiplexing 1310 nm signals onto a single fiber could not be done directly. The only way to multiplex was to use dense wavelength division multiplexing, which requires use of 1550 nm wavelengths.

So before service providers could multiplex, they had to make a conversion, which required turning the 1310 nm signal into an electrical signal and regenerating it as a 1550 nm signal. Such regeneration requires hardware to perform the optical to electrical to optical (OEO) conversion as well as a separate set of lasers to generate the signal.

MetroScout also uses half the power of traditional OEO devices, All Optical says. MetroScout separates 1310 nm wavelengths enough so they don't interfere with each other on a single fiber, but Bennett would not say how that is done.

MetroScout will be available next spring. Pricing has not been set.

All Optical: www.alloptical.com

## Cash back

**All Optical's MetroScout device saves money by:**

- **Multiplexing wavelengths without expensive electrical conversion.**
- **Expanding the capacity of metropolitan fiber links.**
- **Accepting uplinks from unmodified existing gear.**
- **Costing half the price of gear that performs similar functions.**

---

**Phaethon,**
continued from page 37

span, not just at the ends," says Dave Krozier, an RHK analyst. "Carriers have to do an optical design on a span-by-span basis. If they need [dispersion compensation], it can save them some money."

The ClearSpectrum line will include a four-channel module for metropolitan-area networks and an eight-channel module for long-haul applications. Krozier says a potential drawback is that Phaethon will have to customize the modules by system vendor and by carrier network design.

"They're going to have to design these things individually for different vendor systems to match the channel that they're using and also for what channels the carriers want to use the modules on," he says.

At 10G bit/sec, the modules are designed to compensate for chromatic dispersion and slope mismatch.

Chromatic dispersion occurs because different wavelengths travel at different speeds, which causes optical pulses to spread out as they travel through a system. The result is a received signal that has too many errors to be useful. At 10G bit/sec, chromatic dispersion occurs at 40 kilometers; at 40G bit/sec it occurs at 15 kilometers, Phaethon says.

Slope mismatch occurs in single-mode fibers and is an attribute of large channel count systems. Because dispersion differs for every wavelength in a fiber, this results in a dispersion "slope."

Vendors of optical gear, such as dense wave division multiplexers, usually offer dispersion compensation modules (DCM) with their products to minimize the impact of dispersion. These modules only partially correct the dispersion slope. By only partially correcting the dispersion slope, typical DCMs require network operators to deploy more regenerators, multiplexers and demultiplexers because the optical span is limited.

ClearSpectrum is designed to fully correct the slope, and full slope correction increases fiber span distances, obviating the need for additional signal regeneration and wavelength multiplexing gear. LaserComm is another maker of slope mismatch dispersion compensation (see www.nwfusion.com, DocFinder: 4834).

A third dispersion occurs at 40G bit/sec: polarization mode dispersion (PMD). PMD is caused by the elliptical shape of the single-mode fiber core and conditions such as stress or temperature changes. These two factors can produce random fluctuations in the signal, causing it to distort or spread enough to overlap with other pulses. The result is a desynchronized signal that can't be read by the receiver.

Through their tunability, Phaethon's DCMs can optimize the amount of compensation to match network requirements, the company claims. Tuning can be done manually, remotely or dynamically, and will be especially beneficial in meshed topologies where there's much channel add/dropping, bandwidth allocation and restoration taking place, the company says.

The ClearSpectrum modules will also support multiple channels, which will reduce space and cost inefficiencies of "one box, one channel" devices, Phaethon says.

ClearSpectrum modules will be available in controlled release in the fourth quarter. General availability is slated for the first quarter of 2002.

Phaethon: www.phaethoncommunications.com

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DocFinder: 5434

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**CWDM and PON,**
continued from page 37

tional lambda becomes a virtual point-to-point connection from a central office to an end user, says RHK's Moon. If one end user in the original PON deployment grows to the point where he needs his own fiber, adding xWDM to the PON fiber creates a virtual fiber for that user, he says.

"Once the traffic is switched to the assigned lambda, the bandwidth taken from the PON is now available for other end users," Moon says.

Also, PONs were designed specifically for access while CWDMs can play in the metropolitan area as well. PONs are exclusively point-to-multipoint, but CWDM can be configured in point-to-point and Ethernet or SONET ring topologies, Tsunami Optics' CTO James Campbell says.

Indeed, CWDM is 30% of the system cost of DWDM, he says.

"I think the most compelling case for CWDM is that it's an extension of DWDM and can deliver high bandwidth over shorter distances with more connections," he says. "PONs are the economical way to deliver bandwidth to the last mile. It's clear that these two technologies service different portions of the market."

But CWDM still has a number of obstacles to overcome before it is widely accepted, Campbell says. Primarily, CWDM needs low-cost multiplexers, demultiplexers, add/drops and switches.

"These components cannot simply be retrofitted from DWDM systems," he says. "Particularly needed are multiplexers and demultiplexers with low loss, high isolation and proper channel spacing." ◪

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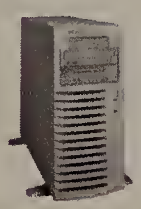

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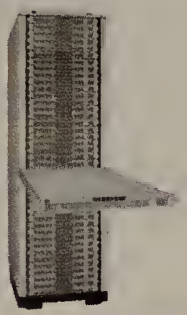

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## Briefs

Looking to improve the security that keeps remote workers safely connected to corporate networks, **Sygate Technologies** last week released Version 2.0 of its **Sygate Secure Enterprise** suite.

Sygate Secure Enterprise comprises three pieces of software that offer firewall, intrusion detection, policy, reporting and authentication services: Sygate Management Server, Sygate Security Agent and Sygate VPN Enforcer.

The Management Server runs on any Windows 2000 system using Internet Information Server and stores security policies, user information and logs.

VPN Enforcer is placed behind the VPN and verifies that everyone requesting network access through the VPN has the proper security software and policies running.

The last piece of the suite, Security Agent, client software that resides on each remote PC and offers firewall and intrusion detection.

The suite is available now and costs $60 to $80 per user, depending on the type of system — desktop, laptop or server — on which the Security Agent is installed.

Sygate: www.sygate.com

**PurchasePro** last week said it would cut its staff by 50% and revamp senior management after the company warned its second quarter losses would be greater than expected.

The business-to-business marketplace platform maker says the layoffs will bring its total number of employees to fewer than 300.

The company also announced that Shawn McGee resigned as its president, effective June 30.

PurchasePro: www.purchasepro.com

# Service keeps telemarketers above board

*Gryphon Networks' Do-Not-Call service helps companies comply with state and federal laws.*

BY ANN SULLIVAN

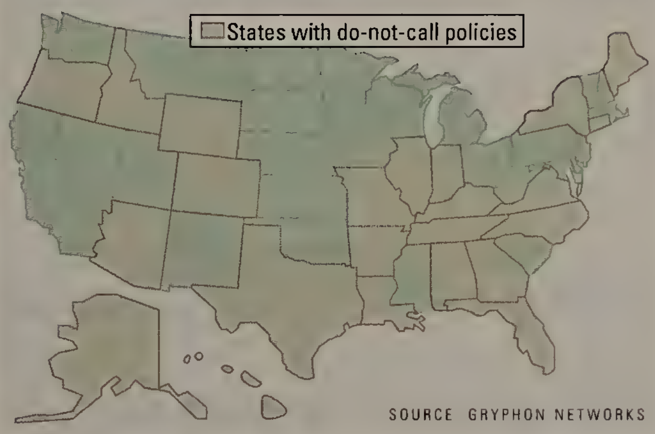
Cold-call a consumer in New York who is listed on the state-managed "do not call" list, and your company could get hit with fines of up to $2,000 per violation. Call a similarly protected Oregon resident, and civil penalties could reach $25,000 per violation.

Three years ago, only Florida and Georgia had state-managed do-not-call lists, which shield consumers from unsolicited telemarketing calls from most for-profit businesses. Today, 23 states have passed legislation to adopt no-call lists, including Texas, where the governor signed its do-not-call bill on June 17.

Keith Fotta has built a company around keeping up with such legislation. Fotta is CEO of Gryphon Networks, which offers a service for call centers and companies in heavily telemarketed fields — in particular banks, brokerage firms and insurance companies — that are trying to stay in compliance with corporate, state and federal telemarketing restrictions.

### Don't call me

**Consumers want relief from telemarketing calls, and lawmakers in these 23 states have responded with provisions for do-not-call lists.**



SOURCE GRYPHON NETWORKS

### Service compares databases, phone lists

Founded in February 2000, Gryphon handles for its 800 customers the administrative task of reconciling enormous phone lists with corporate and state databases through its flagship Do-Not-Call service.

When a sales agent wants to call a prospect, the agent first has to dial a local access number and provide a six-digit personal identification number.

Once authenticated, the agent dials a prospect's phone number, which is captured, encapsulated and sent over a private IP-over-frame network to one of Gryphon's two Massachusetts data centers, where it is checked against Gryphon's databases to see if the number may be called. If approved, Gryphon patches the call through to the carrier network. If not, it blocks the call.

For call centers with predictive dialing applications, Gryphon checks numbers before they are loaded into the predictive dialer.

Gryphon's service lets an agent instantly add a phone number to a corporate no-call list by pressing "#0" while on a call. This feature is important because federal law requires companies soliciting consumer business to maintain a corporate do-not-call list and honor requests

See **Gryphon**, page 44

# Start-up eases database searches

BY CAROLYN DUFFY MARSAN

*VANCOUVER* — A Canadian start-up last week released software that creates a visual map of a large database that is accessed via the Web to improve how users navigate through the information.

Maps created with Antarcti.ca's Visual Net Enterprise software complement keyword searches. The maps can take any form: geographic, topographic or a fanciful cityscape in two or three dimensions.

"This is not going to make searching go away, but it makes it easier to ask general questions about a large database," explains Tim Bray, founder and CEO of Antarcti.ca and co-inventor of XML. "Our maps can tell you what information the human resources department has about the 401(k) plan at a glance."

Antarcti.ca is targeting Visual Net Enterprises at corporate portals and intranets. The company has signed up one corporate customer so far: Macdonald & Associates, a Toronto research firm that tracks venture capital investments in Canada.

Creating a Visual Net Enterprise map for an existing database takes about a month, Bray says. The owner of the data must first decide what information is most important — such as the size of a venture capital deal or how recently it was signed — and then must choose a visual representation, such as a cityscape.

The map offers database users a quick way of answering broad questions about a data set rather than specific queries. For example, you can quickly tell which industries are getting the most venture capital data by looking at which building is the highest in the Macdonald & Associates cityscape.

Visual Net Enterprise works with any existing database built on such standards as XML or SQL. It runs on Apache's Web server software and requires a dedicated server.

Visual Net starts at around $50,000, depending on the size of the database and the amount of traffic it receives.

Antarcti.ca also sells Visual Net for Libraries, which offers built-in support for library numbering systems such as the Dewey Decimal System. Customers of that offering include the University of British Columbia in Vancouver and Belmont Abbey College in Belmont, N.C.

Antarcti.ca's competitors include WebMap and TheBrain Technologies.

Antarti.ca: www.antarti.ca

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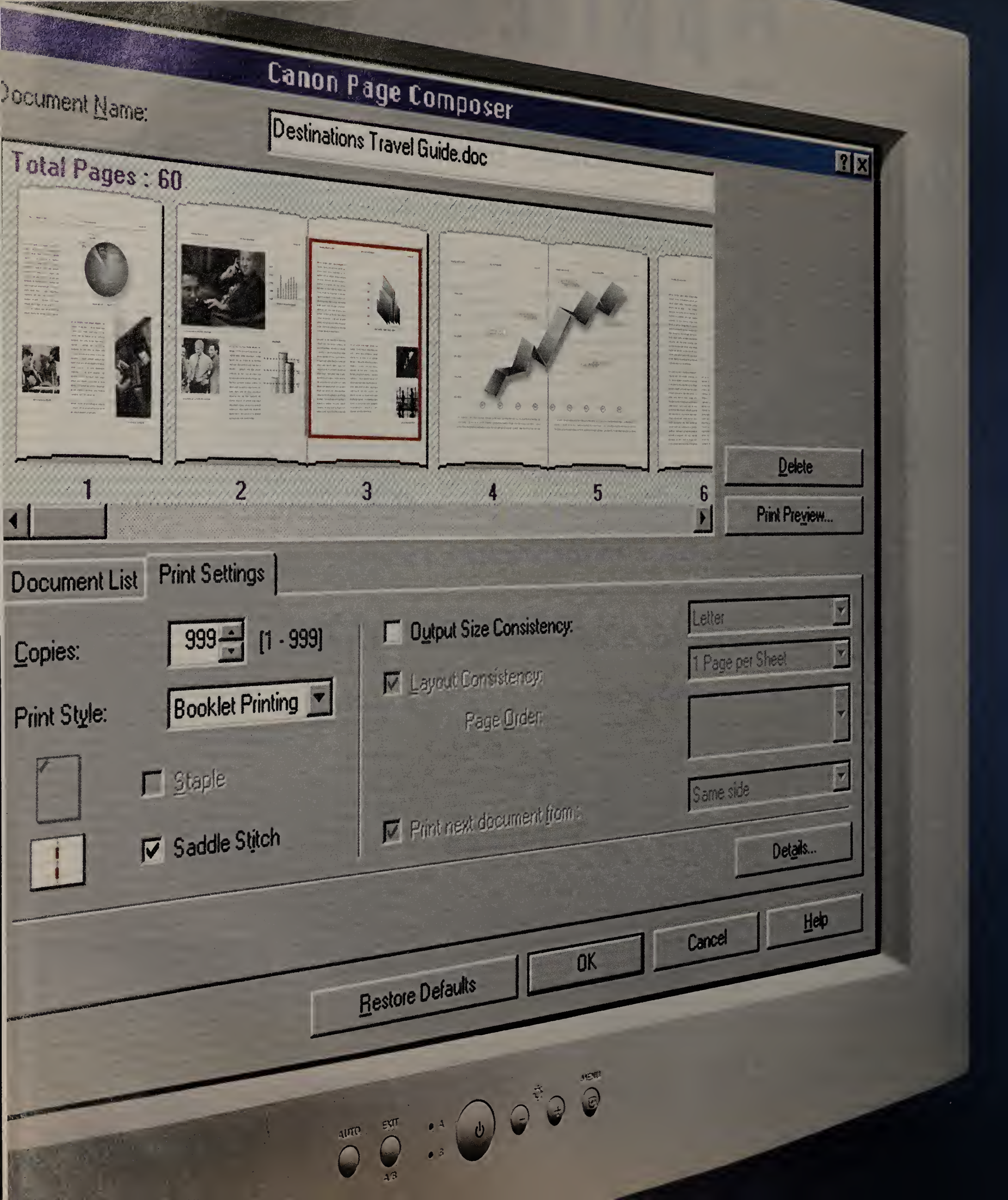

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# QUITE AN ACHIEVEMENT!

How can one public company have losses over three months that total more than the gross national product of a reasonably sized country? It seems that a reliable way to do so these days is to be in the telecommunications business. The leaders, if that is the right word, of the old-line phone business are in a contest with the stars of the Internet firmament over who can lose the most stockholder value. Last week Nortel took a big step to solidify its position in this bizarre contest.

Nortel announced that it had lost $19.2 billion in the second quarter. No matter how you cut it, that's a lot of money. *The New York Times* pointed out that this is more than the gross national product of El Salvador and nearly as much as that of Bolivia. Impressive indeed. That might not be quite the word you would use if, like me, you had some Nortel stock. The value of Nortel stock has gone from $89 per share a year ago to under $10. This represents a loss of $244 billion in shareholder value — ouch!

Nortel is not alone in this. Lucent stock has gone from the high $60s to a bit over $6 in the same time period and Cisco from $70 to $17. Trillions of dollars in paper wealth has vanished. In too many cases it's real wealth because people bought the stock at high prices.

I saw some research a few years ago that looked at the return on investment for a number of different types of infrastructures in the U.S. It looked at the canals, railroads and telephone system. The analysis showed that of these only the telephone system paid back its investors, such as paid for itself. In the other cases, one could say they were financed by stock market crashes.

The companies did not have to pay back the money that investors had paid the companies for the stock. The telephone system eventually paid for itself in the mid-1960s but mostly because it was operating as a regulated monopoly with a rate structure designed to provide a guaranteed return on investment.

Historically, the euphoria ("irrational exuberance") that accompanies a technological shift is rarely well matched to the reality of actual potential return. The past few years of the tech stocks have been a rather good example of this mismatch, unfortunately.

The real question now: Is financing-by-loss-of-stock-value of the Internet now mostly over, or do we have more to go? A corollary question is: Which of these players will have an upside, at least relative to their current valuations? It is well past time to forget about the highs of yesteryear.

Disclaimer: Harvard's endowment profited greatly from the recent euphoria, but I don't know how it's going this year, and the university has not told me its opinion on infrastructure funding.

*Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@sobco.com.*

**Gryphon,**
continued from page 41

to be added to such a list. A federal infraction can carry a fine up to $11,000.

Gryphon's Do-Not-Call service also keeps track of state call curfews, tracks area code updates, performs call log archiving and offers reporting features.

The need for a service such as Gryphon's reflects a change in consumer attitudes toward privacy and the handling of personal data, says Chad Rider, senior analyst at Patricia Seybold Group.

It used to be difficult to get personal information. Now it's easy to get the names; the challenge is knowing when, how and why to contact those people, he says.

Businesses are going to have to change to deal with the way customers expect to be treated, Rider says. "The change that Gryphon Networks is trying to exploit is just the first," he says.

Pricing for Gryphon's Do-Not-Call service begins at $22 per seat, per month; volume discounts are available. Competing services aimed at do-not-call list compliance include Teleblock from CallCompliance and DNCSolution from possible NOW.com.

Gryphon: www.gryphonnetworks.com

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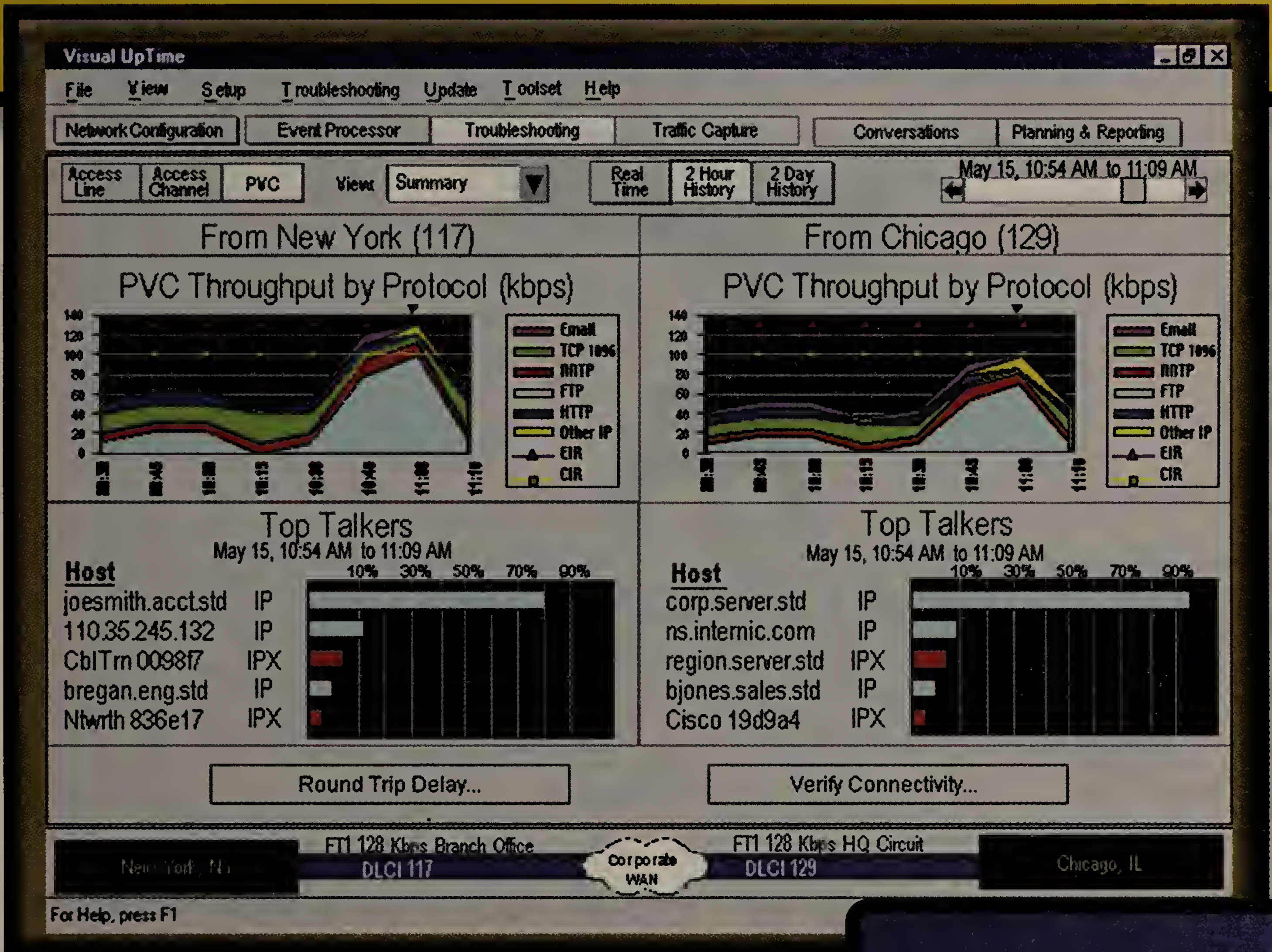

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# Technology Update

**An Inside Look at the Technologies and Standards Shaping Your Network**

# True wirespeed firewalls aid security

BY DAVID BUCHANAN

Remember the phrase, "switch where you can, route where you must"? It was popular in the mid-1990s when Layer 2 switching was revolutionizing network design. Routing was necessary to partition traffic on networks, but it was expensive and difficult to install and manage. It also was a bottleneck to network performance, compared with Layer 2 switching. So net design was contorted to avoid routing in any performance-critical areas of the network.

Firewall security is at a similar point in today's networks. Security is a necessary function in the business network, but it is often too expensive, slow and difficult to install and manage. The very place that it makes the most sense to put it — at the "front door" to the public network from your internal network — is the last place you want to add a performance bottleneck. While it is possible to obtain a cost-effective and reliable gigabit connection to the Internet, a true wirespeed security solution has been elusive. State of the art has been a load-balancing box in front of an array of firewall boxes. This approach is expensive and complex.

The answer is a true, wirespeed gigabit firewall. True wirespeed means no bottleneck under any circumstances, even maximum traffic, full duplex, with 64- and 65-byte packets. A true wirespeed firewall would continue to chug along without dropping a packet, even with 1,000 or more policies applied — truly no impact on net performance. While there are several firewalls on the market with gigabit ports on the panel, none has so far demonstrated anything like true gigabit wirespeed.

With a true gigabit wirespeed firewall, one could construct an Internet Data Center in which the firewall sits directly behind the access router so it protects not only the servers, but also all switches and routers in the infrastructure. Hackers have learned that it can be easier flooding a Layer 3 switch with Internet Control Messaging Protocol packets than attacking the hosts. Besides offering improved protection for all parts of the Internet Data Center, this approach offers a single point of management to update with new policies, thereby lowering the cost of ownership. Ideally, it would also contain the ability to create multiple "virtual firewalls" within the box, so each host system could have its own firewall and policy set, with traffic automatically detected and the proper firewall policies applied.

To achieve this security improvement, a "leapfrog technology" is needed. Vendors have been at work with ASICs for several years and have achieved only a fraction of the necessary speed.

With the network processor, it is now possible to construct a fully programmable architecture that is much faster than current ASIC designs. Today's security standards are in flux so ASIC designs must be left programmable or "soft" enough that the full speed of ASICs cannot be unleashed. In tasks such as Layer 3 switching, the standards (IP, Ethernet) have been solid enough or long enough to commit the entire pipeline to silicon.

Network processors employ a series of programmable engines that can be cascaded to perform pipeline-style processing in a highly efficient manner. With clock speeds increasing as the number of micro-engines per chip also increases, a network processor-based design can take advantage of such improvements. Over time, hundreds of designs will employ the same silicon, driving up volume and lowering costs for everyone. Furthermore, standard software libraries for the architecture will emerge for nominal fees, lowering the design costs for new entrants, resulting in a "snowball" effect that pushes most new network device designs to a network processor-based platform.

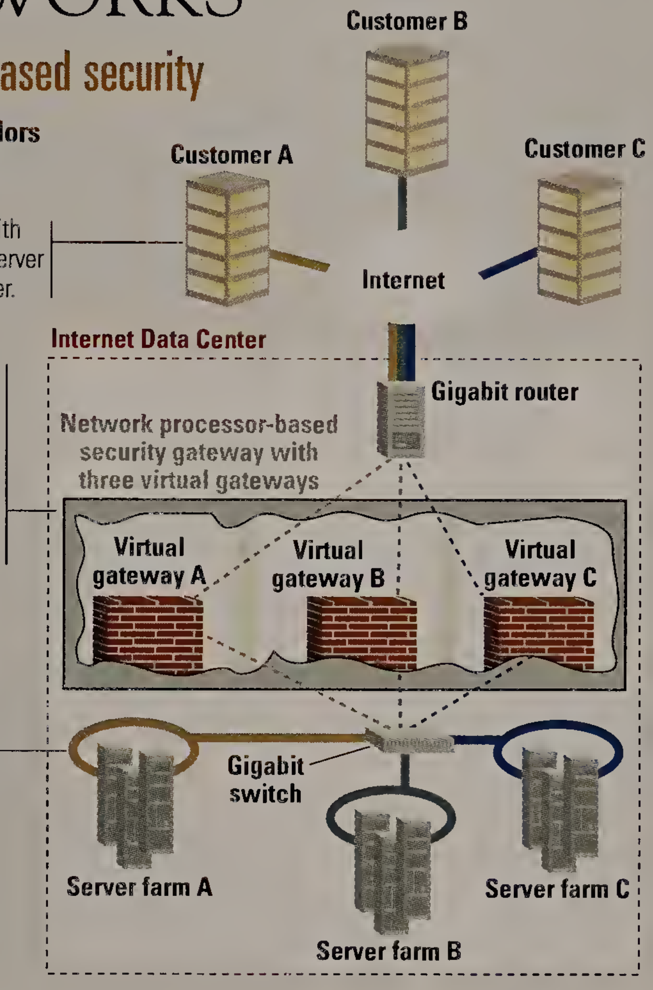
Using network processors, not only can a true wirespeed gigabit firewall be realized, but the same level of performance can be achieved at 10-gigabit speeds within a year. Note that the network processor does not just "make the box go faster," but lets the firewall be placed at any arbitrary location in a gigabit network without affecting network performance.

*Buchanan is vice president of marketing at ServGate Technologies. He can be reached at dave@servgate.com.*

## HOW IT WORKS

### Network processor-based security

**Network processors let vendors build wirespeed firewalls.**



❶ Multiple customers contract with a service provider to manage server farms in an Internet Data Center.

❷ As IP traffic enters the Internet Data Center, it first terminates on the Gigabit (edge) router, which forwards server-bound traffic to the network processor-based security gateway for firewall protection.

❸ A single network processor-based security gateway between the Gigabit router and the Gigabit Layer 2 switch lets each customer have their own dedicated firewall, with individual policies and management. In a traditional scenario, every server would have its own dedicated firewall, which is costly and complex to manage.

## Got great ideas?

***Network World* is looking for great ideas for future Tech Updates. If you've got one, and want to contribute it to a future issue, contact Features Editor Neal Weinberg (nweinberg@nww.com).**

## Ask Dr. Internet

*By Steve Blass*

A recent story (www.nwfusion.com, DocFinder: 4828) talked about split DNS — how can this be done? For example, our internal DNS Start of Authority has a suffix domain of mro.com, so how can a forwarder resolve against another site with the already registered name (of mro.com)?

If you break the rules, you can do all kinds of things with DNS service configuration. You can list forwarders by IP and leave their names out. You can list the internal server at the root server level in the eyes of the internal clients and secondary servers and still go get the records for your public (invisible to the internal world) services servers from an external DNS server by forwarding. You can really have fun with the name space if you configure the DNS server to use a host file instead of DNS. Forwarding is just one way to get answers you don't locally have on hand. If your internal DNS server thinks it's the ultimate authority for the entire domain and won't forward requests for names in the domain it doesn't have, then you can make it secondary for the master domain and primary for the internal subdomain(s) so it will look elsewhere for names in the master domain it doesn't know. *The O'Reilly BIND* book, the BIND manual at www.isc.org, and the book *Firewalls and Internet Security* by Bill Cheswick and Steve Bellovin, are excellent resources for more information on managing DNS across network boundaries.

*Blass is a network architect at Change@Work in Houston. He can be reached at dr.internet@changeatwork.com.*

Gearhead . inside the network machine . Mark Gibbs

# IT'S A PLOT I TELL YOU!

We're deferring the review of tools for creating images using Scalable Vector Graphics for two weeks. This week we take a second look at a tool we thought was terrific in June 1999 (see www.nwfusion.com, DocFinder:4836).

In our estimation, Pingplotter from Nessoft has risen in Version 2.3 from terrific to great and possibly indispensable!

Pingplotter is an implementation of traceroute and displays a graph of the ping time for each hop from your computer to another computer.

With this version, Pingplotter's interface has been polished and has a new window.

The interface sports a list of URLs or IP addresses that can be used to select the target machine and controls for selecting how many times the route to that machine should be traced. You can also specify the interval between traces (from 1 second to one hour) and the number of samples to use to calculate the average round-trip time.

When tracing starts the display lists all steps — by name where possible — on the route to the target, and graphs the minimum, maximum, current and average ping time for each step. Below that graph, another graph shows the average ping time to the target displayed in a horizontal, scrolling ticker for only 1 minute or as long as 48 hours. You can also right-click on any step in the list and add another ping ticker display for that computer.

The new window we mentioned logs when the routing to the target changes. This is interesting because, if you use Pingplotter to monitor your network, it will show you when your routers are misbehaving.

Pingplotter can be set up to alert you when certain thresholds are exceeded for whatever period you like. For example, you might have Pingplotter send you an e-mail if 20 pings out of 100 exceed 500 msec; log all events when 10 out of 10 pings exceed 750 msec, and; play a sound whenever a ping takes more than 1 second. E-mail alerts can also be configured to have the trace data attached.

1=awful, 10=insanely great

A new feature enables you to automatically save sample data and images of graphs. Sample data can be exported to a text file and can be saved in "native" format and reloaded. By clicking within the graphs of reloaded data, you can display the ping times for each step at a specific time.

A new autosave feature supports scheduled saving of the screen image in a variety of formats, which is useful as part of a network management display on a Web server.

Other new options include ways to send custom packets, change display features, and the ability to select any machine in the list of steps and have its Whois or ARIN entry displayed.

We suggest you download Pingplotter and try it out. And if you buy it, you will only be out $15.

Gearhead awards Pingplotter 10 gear teeth out of 10 and a commendation.

*Trace a message to gearhead@gibbs.com.*

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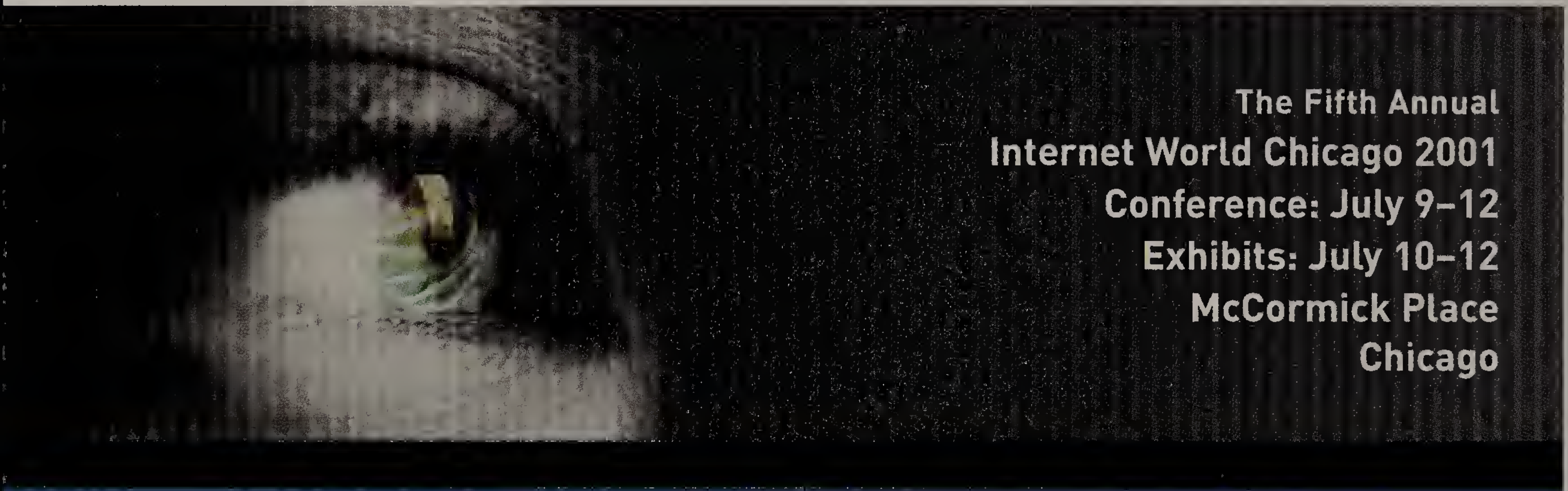

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— Golda Meir

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Editorial

# Pressuring vendors to listen to user ideas

Get a new car and within a few days of driving it you realize the designers could have done a few things better. The radio knob, for example, shouldn't be right above a lighter that is roughly the same size and shape.

But what do you do with that knowledge?

Many carmakers conduct post-sales surveys to ensure the dealer treated you fairly and competently. But do the manufacturers bother to ask you for product feedback? No.

Unfortunately, the same thing is largely true in the network business. Other than high-end software products such as those from SAP that are driven by customer need, packaged software vendors generally do not go out of their way to collect user feedback.

Instead, vendors pour their efforts into product support, which, said another way, is simply helping you deal with problems they built into their products.

Why can't they steal an ounce of that energy and use it to collect meaningful feedback about how customers like their products? The cycle should go something like this: sell something, collect feedback on how to make it better, improve the next offering.

But just try to find a way to channel feedback to a large software firm. Some are more forward thinking than others, but by and large the industry turns a deaf ear to individual users. They try to make do with beta cycles, feedback from corporate shops, user group input and monitoring newsgroups.

All well and good, but there is no immediacy in these methods, and the process is too sanitized — the folks in the trenches have some of the most meaningful thoughts about how to improve products.

Wouldn't it be nice if vendors actively solicited feedback on an ongoing basis? Instead of casually collecting information, developers should make these feedback loops a formal component of their product evolution. Every vendor home page should feature a prominent "Product Feedback" button.

Better yet, the feedback mechanism should be embedded in the application: "Have an opinion about how to make this product better? Hit this button to generate e-mail to Constant_Improvement@myvendor.com." Or "Hit this link to join a user discussion about this new product."

The end result would be better products and fewer calls to your help desk.

— John Dix
Editor in chief
*jdix@nww.com*

Message Queue

## NORTEL RESPONDS

Your story "Novell caching spinoff no cash cow" (www.nwfusion.com, DocFinder: 4822) conveyed misconceptions that should be rectified to ensure your readers receive all sides of the story.

First, the story states that there are negative technical issues with the Excelerator 2.0 product. The Excelerator is an embedded component of our recently released Personal Content Cache product. Contrary to the story, our quality-assurance testing proved the product stable and high-performing.

The story also states that Volera is competing with its OEM partners by selling directly to enterprise and service provider customers, which has negative consequences for partners. Volera is not competing directly with Nortel, and our field involvement is cooperative.

In sum, Nortel's partnership with Volera is strong, and we're very pleased with the performance of the product released and with our engineering interaction on future projects.

*Barton Burstein*
*Vice president, business development*
*Nortel Networks Content Networking Business*
*San Jose*

## TAUZIN TALK

Regarding Thomas Nolle's column "The Tauzin bill: Regulations, opportunity and competition" (www.nwfusion.com, DocFinder: 4823): The current bill may be, as Nolle characterizes it, not so much a protection for the incumbent local exchange carriers (ILEC) as a lack of additional regulation. But the fact remains that the result of this bill is the death of local competition. Wired, analog dial tone service will surely be with us for a while to come, but over the next decade or two its market share in U.S. households will decrease — replaced by services that, when this bill is passed, will only be available from the existing Bells. These Bells will lose their incentive to act in a timely manner to requests from competitive local exchange carriers, and the CLECs will lose the ability to compete in the data or long-distance markets without last-mile access to broadband services.

The Tauzin bill is not geared toward improving the telecom landscape. It will not improve bandwidth access for consumers or business. It will not improve pricing for telecom service. It will not foster, in many localities, new service installations. It will not foster competition. It *will* increase the profits, share prices and dividends of the ILECs.

Nolle contends that the only way, currently, that we can experience local competition is if Wall Street sees a large margin on the return on investment. Since this is not a realistic expectation, the only other way to nurture competition is to keep some regulations on the backs of the Bells.

*Bart McNeill*
*System administrator*
*MuseumCompany.com*
*Charlottesville, Va.*

## WIRELESS EUROPE

In his column "Europe's wireless industry is on the brink of disaster" (www.nwfusion.com, DocFinder: 4824), Ira Brodsky states that switching to Qualcomm's CDMA2000 makes the most business sense. I can't see how this can be the case, especially considering the amount of time, effort and money European companies have poured into the development of Wideband Code Division Multiple Access (W-CDMA) enabling technologies and services.

My understanding is that W-CDMA was chosen specifically to act as a spur to the European economy and to keep Europe at the forefront of the wireless communication revolution. Yes, the industry is going through some difficult times, but that can be put down to the setting of unrealistic forecasts, bad marketing, and not realizing the scale and complexity of the project.

Europe needs to remain united and plow forward with the W-CDMA standard. If it is scrapped in favor of CDMA2000, the European communications landscape will take on a distinctly American flavor.

*John Pozoglou*
*Project director*
*Mobile Commerce World Europe*
*London*

*E-mail letters to jdix@nww.com or send them to John Dix, editor in chief,* Network World, *118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.*

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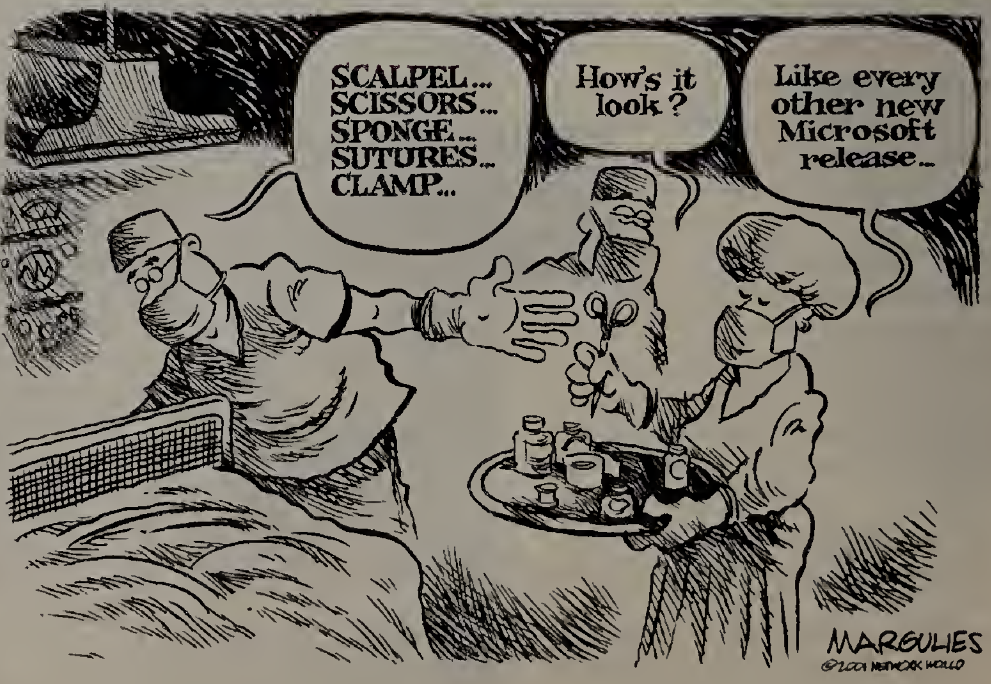
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**Bottom Line . Joel Snyder**

# IT'S TIME TO BECOME MASTER OF YOUR DOMAINS

If I have to read another article about the new top-level domain names, I'm going to scream. So I'll compound the crime by writing one about them myself. But, unlike the others, my piece will be useful and correct.

I'm not going to talk about all those new and useless TLDs, such as .info and .biz. I want to talk about the old .com, .net and .org domain names. We've been in the pay-to-play regime for years now, so every name in these common TLDs has gone through at least one payment cycle. Now, there are so many domain names floating around that the names and registrars are becoming difficult to keep track of. Because we're getting into the dog days of summer, this is a good time to get your domain name act together. Here are some suggestions:

- **Make a list.** You'll be surprised at how many domain names you have. When a company had one (and it was free), things were easy. Now that even the most mundane company has multiple domain names, you need to keep closer tabs. Figure out which domain names you have, which registrar is handling them, when the next payment is due and what your contacts and name servers are. If you have IP addresses assigned to you, don't forget to verify your reverse DNS mapping at the domain in-addr.arpa as well.

- **Compare your list to reality.** The Internet is changing every day, and the odds are that something is wrong with your domain names, especially if they're old. You may be pointing at a secondary MX that won't accept mail for you anymore, or one of the name servers listed for your name may no longer be doing zone transfers. Make sure your company name, address and contacts (phone and e-mail) are correct in the registrar database.
- **Clean up your act.** You may have domain names you're not using. Delete them now. If you're spread across registrars, consolidate with one you trust. Remember, the reason there are multiple registrars is so that companies can make lots of money selling you domain names, not to make your life easier. Deal with one company and one modification system.
- **Prepay your bills.** Back when the idea of paying for a domain name was revolutionary and evil, companies did it one year at a time. Stop doing that; you're wasting time and money. You know you want to keep that domain name, and the cost to generate a purchase order every year is much higher than the cost of the name. Unless you really think you won't be using that name next year, renew it for as many years as you can: five is a good starting point because odds are you'll be doing something else in five years and it'll be someone else's problem.

*Snyder, a Network World Test Alliance partner, is a senior partner at Opus One in Tucson, Ariz. He can be reached at Joel.Snyder@opus1.com.*

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**Above the Cloud . James Kobielus**

# P2P 'FAT CLIENTS' ARE WRONG FOR INTERNET COLLABORATION

In today's online world, most of us live by the philosophy "Have browser, will travel." Often we can travel as far as we like on the Internet with just this one thin client. And many of us prefer to travel light, resisting efforts to add new client applications to our desktops or to bury our browsers under applets, plug-ins and other new software layers.

So it's puzzling to see the re-emergence of the Internet "fat client" in the form of peer-to-peer environments. In all the attention given to peer-to-peer architectures, we overlook the fact that these environments often require each user to download, install, configure and update multimegabyte peer software packages. In itself, the peer software, which corresponds to an individual desktop, usually supports presentation, application logic and data-store functions.

For sure, there are great differences among today's Internet-centric peer-to-peer environments. Not all peer-to-peer products require hard-disk-hogging software downloads. Many of them rely to varying degrees on server-based processes such as search engines, directories and message routing. And there's no denying that peer-to-peer technology has its killer (albeit sometimes controversial) applications, most notably music file swapping and compute-cycle brokering.

But Internet-spanning collaboration environments are not well suited to the peer-to-peer architectural model, in spite of all the attention paid recently to Groove Networks' flagship offering. It's asking too much for people in different organizations to standardize on one vendor-proprietary peer-to-peer collaboration environment such as Groove and to download and install that particular vendor's peer software. Also, what happens when users participate in multiple Internet-centric peer-to-peer-based collaboration environments? Do they need to download and install multiple vendor-proprietary peer software packages on their desktops and laptops? How can users access peer-to-peer environments from PDAs and other resource-constrained handheld clients?

In today's business environment, collaboration is very fluid. Teams rapidly form and dissolve across time, space and corporate boundaries. In a business-to-business environment, practically the only collaboration-relevant common denominators shared by all potential team members are access to the Web, Internet e-mail and the telephone. Where online "teamware" and other Web services are concerned, the browser is the preferred client. Peer-to-peer collaboration environments such as Groove cannot achieve much marketplace traction in the face of this unstoppable trend.

Groove's marketing machine has benefited greatly from the fact that company founder Ray Ozzie is also the inventor of Lotus Domino/Notes. With Ozzie involved, the IT world half-expects lightning to strike twice, as if he and his new firm have some magic touch that will propel the peer-to-peer model to ubiquity in the Internet collaboration market.

But that just isn't happening. Groove is one of the few Internet collaboration platform vendors to base its technical architecture on peer-to-peer. Most commercial Internet collaboration products rely on browser interfaces and place zero to minimal configuration requirements on the browser. The leading offerings in this area are browser-oriented products and services from vendors such as eRoom and WebEx.

These browser-oriented products offer functionality similar to that of premises-based groupware environments such as Lotus Domino/Notes and Microsoft Exchange/Outlook. Browser-oriented services can support requirements for business-to-business communication, coordination and resource sharing. These Web-centric products support user roaming while providing full access to collaborative functionality. And to varying degrees, they can supplement the functionality of organizations' internal collaboration environments.

From a supportability standpoint, browser-oriented collaboration environments have many advantages over peer-to-peer products. The former are easier to configure, administer, personalize and support than peer-to-peer environments, which require software installations on every client.

If there's a clear niche for peer-to-peer collaboration environments such as Groove, it's in support of small, stable, self-contained workgroups of people who interact frequently. In other words, peer-to-peer, as its name implies, may be the appropriate collaboration environment for true peer groups, in which participation is by invitation and users trust each other enough to open up their file systems and desktops to mutual perusal.

But in all likelihood, stand-alone, peer-to-peer collaboration products won't survive long. They'll migrate architecturally toward browser-oriented environments or be absorbed into the leading, premises-based groupware environments — Lotus Domino/Notes and Microsoft Exchange/Outlook — which are themselves becoming more browser-oriented.

Thin is in — thin clients, that is — and will remain a dominant application architecture of the Web-computing era. Recent interest in peer-to-peer products and services won't alter that deep-seated trend.

*Kobielus is an analyst with The Burton Group, an IT advisory service that provides in-depth technology analysis for network planners. He can be reached at (703) 924-6224 or jkobielus@tbg.com. The opinions expressed are his own.*

# The path to 3G

***Learn the challenges and issues facing the implementation of this technology and the measures adopted by various vendors and carriers.***

BY STEVE JONES

Is 3G a wireless marvel or an investment disaster? This question is weighing heavily on the minds of many telecommunications carriers around the globe, especially as the initial allure of 3G wireless technologies wear off. The technology promises high-speed data, mobile streaming video and anytime-anywhere access. But implementation costs have significantly dampened enthusiasm. Depending on whom you ask, 3G wireless technology will be the greatest innovation in the 21st century, or the biggest bunch of hype in the world. As it stands, 3G is riddled with the deep craters indicative of an evolving wireless landscape. Naturally then the confusion surrounding this new and uncharted territory can be overwhelming, and the danger of losing one's way great. To help sort out the challenges and avoid potential pitfalls, we present this 3G map as a guide for the seemingly treacherous journey through the wireless world.

ILLUSTRATION: MATSU

## Definition

3G wireless technology is a global communication technology that makes possible packet-based transmission of digitized voice, data and video. The 3G umbrella encompasses a range of competing wireless technologies, such as Code Division Multiple Access (CDMA) 2000, Universal Mobile Telecommunications Service (UMTS) and wideband CDMA (WCDMA). The International Telecommunication Union last year spelled out the guidelines for 3G in the IMT-2000 framework as being capable of data transmission speeds of 144K bit/sec inside a moving vehicle and 2M bit/sec in a fixed location, using packet-based rather than circuit-switched technology and permitting global roaming.

## Carriers

The race to 3G is about spectrum. Nowhere is this more apparent than in the U.S., where a shortage of frequencies may seriously undermine 3G implementation. In an effort to comply with an agreement made at the World Radio Conference (WRC) in the spring of 2000, the Federal Communications Commission is examining ways to make more spectrum available for 3G. The range from 1710 to 1855 MHz, in addition to the 2520 to 2670 MHz frequency band, was determined to be the global spectrum assignment for 3G applications at the WRC.

Currently, the Department of Defense uses this 1.7 GHz band that is being eyed by prospective 3G wireless carriers for services such as wireless high-speed Internet access. The Defense Department uses this spectrum for satellite control and military purposes. According to the Defense Department, relocating to another portion of the spectrum would cost billions of dollars and take a decade or two to achieve. A proposed alternative has been for wireless providers to share the spectrum with the Defense Department, but that would impose many restrictions on the Defense Department and the carrier's operations. It remains to be seen how the FCC handles this sensitive issue.

Agreements made at the WRC in the spring of 2000 were designed to facilitate worldwide roaming capabilities. The establishment of specific frequencies for 3G wireless technology requires that the U.S.

re-evaluate its spectrum allocation to embark on 3G at a global level. However, citing issues of national security, the military is leery of sharing this band, especially with the commercial sector. In an attempt to compromise, the National Telecommunications and Information Administration, the government agency that issues government-operated spectrum to the commercial sector, may pay the Defense Department to move to another spectrum.

Despite a potential deadlock in the U.S., the 3G frenzy in North America continues as carriers jockey for position. Although no 3G licensing has yet occurred in the U.S. or Canada, several of the major carriers have outlined their 3G plans. Unlike Europe, which has a uniform wireless standard based on the Global System for Mobile Communication, North America (and the U.S. in particular), currently uses Time Division Multiple Access (TDMA), Frequency Division Multiple Access (FDMA), GSM and CDMA. With four platforms in existence, the road to 3G is not guaranteed to be straight and narrow.

The existing networks are determining what path the carriers are choosing to get to 3G. In North America, as in the rest of the world, there are two seemingly related 3G options: WCDMA and CDMA 2000. While WCDMA is a natural progression from GSM networks, CDMA 2000 builds on platforms currently using CDMA technology. Because Europe already has GSM in place, these carriers will use WCDMA technology to provide 3G services such as mobile streaming video. This also means that North America and the U.S. may be using both WCDMA and CDMA 2000 to move to the next generation of mobile applications.

### North American wireless carriers

| Carrier | Path to 3G | Wireless subscribers (voice and data) |
|---|---|---|
| **Sprint PCS** | CDMA 2000 | 90 million |
| **Verizon Wireless** | CDMA 2000 | 26 million |
| **Cingular** | WCDMA | 19 million |
| **AT&T Wireless** | UMTS & WCDMA | 12 million |
| **VoiceStream** | WCDMA | 3 million |

As if the challenges presented by spectrum allocation were not enough, it's also not possible for carriers to implement WCDMA and CDMA 2000 within their networks. So in addition to finite resources, North American wireless service providers must roll the dice on which 3G platform will be most advantageous to implement. Currently, CDMA 2000 and WCDMA have strong potential, according to preliminary 3G plans.

Hoping to be the first to implement 3G in the U.S., Sprint PCS and Verizon Wireless are conducting field trials of CDMA 2000 1XRTT. The 1X denotes a CDMA 2000 standard that is intended to double the voice capacity of current CDMA systems and improve data rates to 144K bit/sec. Sprint PCS expects to complete its network upgrade to CDMA 2000 by the end of the first quarter 2002 with Verizon following closely on its heels. On the other hand, VoiceStream and AT&T Wireless are taking the WCDMA route. Another major player, Cingular Wireless, had not officially committed to either platform by press time. (see graphic, above).

The 3G path is also a guessing game from a global perspective. While Europe is moving toward WCDMA, countries such as China and South Korea seem poised to use CDMA 2000. This is in contrast to Japan where all eyes are on DoCoMo, which upon completion of a nationwide WCDMA platform for 3G will have $8 billion in committed resources, as estimated by Goldman Sachs. Currently, DoCoMo is conducting a beta test of approximately 4,000 users with a large-scale implementation scheduled for October.

However, until spectrum allocation is resolved worldwide, the technology used for 3G network implementation is not the issue companies are most worried about. With 3G spectrum auctions in Germany and the U.K. setting a dangerous precedent, some companies are finding that the prices they paid for licensing are affecting their ability to invest in 3G infrastructure. This has surfaced recently as a major pothole on the road to 3G, one that is causing many wireless carriers to need new wheel alignments. (see graphic, page 56).

## Vendor talk

In addition to 3G's already hefty price tag, the end user devices to be used in conjunction with the next generation of wireless infrastructure are also expected to be expensive. It's estimated that 3G-enabled handsets will cost $300, in addition to monthly service fees that could be as high as $90.

Further aggravating the delay of 3G implementation is the lack of availability of these pricey handsets. For example, of the 10 vendors expected to make phones for DoCoMo's 3G implementation this October, only two companies have products available. Moreover, the lack of applications for 3G handsets is another hurdle. Not only do equipment manufacturers need to speed up 3G development, but so do application developers if 3G is to reach its potential. The catch is that both players are motivated by demand, and the jury is still out on whether there will be widespread consumer demand for 3G products and services.

Despite these hurdles, major equipment vendors have mostly laid out their blueprints for migrating toward 3G technology. In general, companies are making devices for CDMA 2000 and WCDMA although many corporations have aligned themselves with specific platforms through strategic partnerships. For example, Motorola, Lucent, Nortel, Samsung and Qualcomm are providing equipment for beta tests of CDMA 2000 rollouts in the U.S. Meanwhile, Ericsson and Japan Telecom recently partnered to test the world's first field trial of voice over IP using WCDMA. The following summaries give a brief overview of the direction some of these major players are moving.

● Nokia: Nokia's solution for 3G implementation revolves around an all-IP network consisting of an IP radio access network (IP-RAN) and IP Mobility Core network. These networks can support major interface technologies, including GSM, wireless LAN Wi-Fi/802.11b and WCDMA, and are backward compatible with existing mobile networks. The IP Mobile Core network uses IPv6, providing easy interface for multivendor technologies and has quality of service and security management features incorporated in it.

● Ericsson: Ericsson recently announced the completion of a 3G CDMA 2000 Mobile Switching Center (MSC) that is set to be deployed into its mobile networks. Actively involved in defining standards for

**The word "wireless" has become a vague word, where anything that connects to a network without wires is considered in the "wireless" category. Within this Technology Insider, we've focused on some areas within the wireless space, including:**

### INSIDE

- **Developing wireless applications just got easier:** Wireless devices invade the corporation! Now you need to take your company's applications and make them available for these devices. Things are a little easier now, check out the review of "wireless middleware" development tools. **Page 58.**

- **Head online to Network World Fusion's Wireless Research page,** which gives links to every topic in the wireless universe, including wireless LANs, Bluetooth, WAP and other technologies. **Go to www.nwfusion.com DocFinder: 4831**

CDMA 2001*EV DO (Evolution Data only). Ericsson's solution needs only a software upgrade from existing CDMA One networks and will support various technologies, such as Wireless Application Protocol, Bluetooth and Java on its 3G platform, focusing on offering real-time wireless voice and data capabilities to customers.

- Motorola: Motorola's Aspira technology is based on all-IP core network in collaboration with Cisco. It devises separate paths for migration from CDMA and GSM platforms and includes IP billing, network management and operational support features. The company recently completed lab tests of delivering live video over its 3G product

## Applications

With all the gray areas surrounding 3G, one might wonder what the rush is to use a technology that has different standards, costs a lot and evicts other residents from their spectrum assignments. The answer is in the potential applications that range from streaming video, integrated voice and data services, to full-scale multimedia.

Potential 3G-enabled wireless devices (mobile phones, PDAs and others) could include the functions of a video camera, computer, stereo and radio combined. The biggest attraction for mobile consumers would be "Mobile Internet" services, creation of personalized portals that would integrate unified messaging and mobile-commerce (m-commerce) features. Applications such as e-mail, Web-browsing, stock-quote tracking and airline reservations are only the beginning. Videoconferencing and online "window" shopping are set to be the next generation of applications, with roaming capabilities throughout Europe, Japan and North America being the next big step. In particular, one school of thought believes that the push for 3G will be driven by m-commerce, the idea that financial transactions can be carried out over mobile devices as easily as the wired network.

Studies supporting this predict that Europe will benefit the most from m-commerce in the next five years, consistently acquiring 40% to 50% of the m-commerce market. This is in contrast to North America, where the outlook is at 15% to 25%. But other reports cite spectrum issues and 3G infrastructure implementation delays as hurdles to the potential of m-commerce. These studies conjecture that m-commerce will not become a major market player until 2007.

## Technical framework

From a technical standpoint, the IMT-2000 framework also supports both of the signal transmission technologies of WCDMA and CDMA 2000. In particular, European countries and Japan have chosen the UMTS terrestrial radio access (UTRA) as a solution to move their networks into the next generation of mobile networks.

This is the third generation of mobile developed by the European Telecommunications Standard Institute (ETSI) based on the ITU's IMT-2000 framework. On the U.S. side, the new generation, based on the same framework, is represented by the standard CDMA 2000.

UMTS is a packet-based transmission of text, digital voice, video and multimedia at data rates up to (and possibly higher than) 2M bit/sec. In January 1998, the European Institute settled a specification of the UTRA using a combination of two 3G-radio wideband multiple access technologies: WCDMA and Time-division/CDMA (TD-CDMA).

The first system, FRAMES Radio Wideband Multiple Access mode 1 (FMA1), operates on unpaired frequency bands and is used with time-division duplex (TDD) operations or TD-CDMA. Each carrier has a frequency spacing of 1.6 MHz, on which user channels are separated into time slots. Within each slot, spreading codes create supplemental separations. Its frequency range is between 1,885 and 1,920 MHz for the downstream bandwidth and 2,010 to 2,025 MHz for the upstream bandwidth.

The second system, FMA2, is used for wide-area service and refers to WCDMA. WCDMA is based on frequency division duplex (FDD) operations that operate in paired frequency bands.

The FDD bands use the 1,920 to 1,980 MHz downstream bandwidth and the 2,110 to 2,170 MHz band for upstream purposes. FMA2 allows 5-MHz frequency spaces per carrier slots to implement FDD. Frequency bands 1,980 to 2,010 MHz and 2,170 to 2,200 MHz are used for Earth-to-satellite communications.

### Worldwide 3G licenses

| Countries | License method | License offer date | Number of license holders |
|---|---|---|---|
| **Austria** | Auction | November 2000 | 6 |
| **Belgium** | Auction | March 2001 | 4 |
| **Finland** | Government selection | March 1999 | 4 |
| **Germany** | Auction | August 2000 | 6 |
| **Italy** | Auction and gov't selection | October 2000 | 5 |
| **Japan** | Government selection | July 2000 | 3 |
| **Lichtenstein** | Government selection | February 2000 | 1 |
| **Netherlands** | Government selection | July 2000 | 5 |
| **New Zealand** | Auction | January 2001 | 4 |
| **Norway** | Government selection | November 2000 | 4 |
| **Portugal** | Government selection | December 2000 | 4 |
| **Spain** | Government selection | January 2000 | 4 |
| **Sweden** | Government selection | December 2000 | 4 |
| **Switzerland** | Auction | November 2000 | 4 |
| **Thailand** | Government selection | January 2000 | 2 |
| **U.K.** | Auction | April 2000 | 5 |

The maximum throughput of UTRA is related to the environment. In rural areas, it will be at least 144K bit/sec; in cities, at least 384K bit/sec; and indoors, a minimum of 2M bit/sec. They will provide high service flexibility with support of multiple parallel variable-rate services on each connection. To define what can be considered as rural, city or indoor places, a cell structure is implemented.

## Cell principles

The 3G network architecture is based on two main principles: Cellular networks should be structured to maximize network capacity and offer multimedia services independently of the place of the end users. The UMTS network will be planned to use a hierarchical cell structure using pico, micro, macro and satellite cells.

The pico cells would be deployed for private, indoor services in the unpaired frequency band. Their locations would be in areas where there is a demand for high data rate services, such as laptop networking or multimedia conferencing.

The micro cells would be used for outdoor coverage, where high capacity is required and larger cells cannot cover, such as city streets hidden by large buildings. The shape of the micro cells would be canyon-like, in order to fit the topography of a street.

The macro cells have a hexagonal shape and provide wide-area coverage. They constitute the core of the network coverage and are based on the existing second-generation mobile network.

Finally, satellite cells allow a global wireless communication with high capacity. In each cell, the UMTS standard lets the operator choose between using the FDD or TDD methods, depending on the traffic.

Following the success of the Subscriber Identity Module (SIM) in GSM for its high security and customization features, UMTS phones will keep this system with the UMTS Subscriber Identity Module. The high capacity of communication that UMTS offers will have to be in accordance with the capacities of the phones. The challenge of the next two years is for the "smart cards" constructors to create larger built-in memory SIM so to stock data such as pictures, personal files or signatures.

A simple vision of the UMTS network architecture is to divide the cellular network into parts where the UTRA system will be inserted. On one side of the UTRA system is the user equipment domain while on the other side is the infrastructure domain.

The user equipment consists of the cellular phone or another end device, and uses a radio interface to communicate with the UTRA system. UTRA consists of a set of Radio Network Sub-System (RNS) that can be assimilated to the Base Station System in the GSM world.

The RNS manages resource allocations of the radio link to the end user. Each RNS is composed of Radio Network Controllers: RNC (same main function as the Base Station Controller in GSM) and Node Bs (comparable to the Base Transceiver System in GSM). RNC controls resources allocations of the Node Bs and manage hand-over features. RNC have the possibility to communicate between them via direct links.

The infrastructure domain or the core of the network provides the features of management of user location information, control of network features and services and the transfer (switching and transmission) mechanisms for signaling. It is subdivided into the Serving Network Domain, the Home Network Domain and the Transit Network Domain

The Serving Network Domain contains the informative and decisional part of the core network, which belongs at the position of the users in the UTRA network domain. Routing calls, service implementation and carrying data from the source to the destination is executed at this level. The Home Network Domain contains all the permanent information that concerns the subscriber. The transit network domain is the network part connected to the outside networks (such as the public switched telephone network, ISDN or Internet).

*Jones is the associate professor at the Ball State University Center for Information & Communication Sciences. Research assistants Rajesh Chandran, Rachel Gussett Williams, David Souchot and Wiyada Thitimajshima helped with this report.*

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# Building wireless apps just got easier

***The best tool for giving mobile workers wireless access to a vertical market application is iConverse's Mobile Studio and Interaction Server.***

BY BARRY NANCE, NETWORK WORLD GLOBAL TEST ALLIANCE

Most companies have core business functions that occur outside the main office. At the auto body shop, an insurance claims adjuster inspects the damage to an accident vehicle. A telephone or power company repairman connects wires atop a utility pole or on-site at a customer's home or business. Truck drivers deliver goods to a customer's destinations. Sales representatives visit customers to offer products and close deals. In the past, automation of these core business functions typically implied filling out forms at the remote location and transcribing the forms data into the computer when the person returned to the company's office.

Taking a notebook computer into the field helps alleviate the need to fill out forms, but remote workers still cannot connect to the main network until they return to the office.

What if the remote worker could have wireless access to the company's network via a Wireless Application Protocol (WAP)-enabled cell phone or wireless PDA? The remote worker could then use the application software anywhere. However, the different sets of user interface constraints posed by wireless devices and the diverse markup languages for controlling the handheld devices' interfaces are major issues. The limited screen view of a few lines of LCD text on a cell phone display or PDA is a far cry from the rich graphical interface of Windows, the Macintosh or X-Windows. An application typically gets to present just a few data values or ask a single question per screen. Voice recognition and voice synthesis complicate matters even more.

This opens up a world of questions. How will your networked application infrastructure change when you give remote workers wireless devices to take into the field? What new servers, software and protocols will you need to support? How do you change or create a vertical-market business application to work with wireless devices? Which devices will you be locked into using?

## NetResults

**Network World Blue Ribbon WINNER**

### Mobile Studio 2.0 and Interaction Server 2.0

**RATING:** 4.3 **COMPANY:** iConverse, www.iconverse.com **COST:** Starts at $100,000. **PROS:** Superior visual design tool; excellent device support. **CONS:** None.

### GoAnywhere Platform 2.32

**(Includes AnyDevice Mobile Server, AnyDevice Voice Server and AnyDevice Studio)**

**RATING:** 4.2 **COMPANY:** AnyDevice, www.anydevice.com **COST:** Starts at $100,000. **PROS:** Excellent device support; good visual design environment. **CONS:** Proprietary wireless markup language.

### OneBridge Mobility Platform 1.1

**(Version 2.0 released as we finished this review)**

**RATING:** 4.1 **COMPANY:** ViaFone, www.viafone.com **COST:** Starts at $100,000. **PROS:** Excellent device support; highly scalable; good security features. **CONS:** Visual design tool relies too heavily on text editor component.

### Mobil Internet Platform Version 2.1

**RATING:** 3.6 **COMPANY:** Air2Web, www.air2web.com **COST:** A complete production application starts at $120,000. **PROS:** Good device support; ongoing operational Air2Web role can reduce your IT wireless burden. **CONS:** No visual design tool; ongoing operational Air2Web role is an extra relationship to manage.

### XMLEdge 2.6

**RATING:** 3.0 **COMPANY:** MobileQ, www.mobileq.com **COST:** Typically $100,000. **PROS:** Easy-to-use drag-and-drop visual design environment. **CONS:** Proprietary wireless markup language.

### M-1 Mobile Application Server 1.0

**(Version 2.0 was released as we finished this review)**

**RATING:** 2.9 **COMPANY:** Aligo, www.aligo.com **COST:** $50,000 per CPU. **PROS:** Excellent application architecture; highly scalable. **CONS:** Needs a better visual design tool.

### Echo 1.1.253

**RATING:** 2.9 **COMPANY:** Wireless Knowledge, www.wirelessknowledge.com **COST:** Starts at $40,000 per server. **PROS:** Much simpler to use than the other tools. **CONS:** Windows-centric.

| | Wireless device support 20% | User Interface 20% | Adherence to standards 20% | Security 10% | Platform neutrality 10% | Documentation 10% | Installation 10% | Total score |
|---|---|---|---|---|---|---|---|---|
| **Mobile Studio 2.0 and Interaction Server 2.0** | 5 | 5 | 5 | 3 | 4 | 3 | 3 | 4.3 |
| **GoAnywhere Platform 2.32** | 5 | 4 | 5 | 3 | 4 | 4 | 3 | 4.2 |
| **OneBridge Mobility Platform 1.1** | 5 | 3 | 5 | 4 | 4 | 4 | 3 | 4.1 |
| **Mobil Internet Platform Version 2.1** | 4 | 2 | 4 | 3 | 5 | 3 | 5 | 3.6 |
| **XMLEdge 2.6** | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3.0 |
| **M-1 Mobile Application Server 1.0** | 3 | 2 | 3 | 3 | 4 | 3 | 3 | 2.9 |
| **Echo 1.1.253** | 3 | 2 | 4 | 3 | 2 | 3 | 3 | 2.9 |

**Individual category scores** are based on a scale of 1 to 10. **Percentages** are the weight given each category in determining the **total score. Scoring key: 5: Exceptional showing** in this category. Defines the standard of excellence; **4: Very good showing.** Although there may be room for improvement, this product was much better than average; **3: Average showing** in this category. Product was neither especially good nor exceptionally bad; **2: Below average.** Lacked some features or lower performance than other products, or than was expected; **1: Considerably subpar,** or lacking features being reviewed.

Fortunately, several software vendors offer tools that help give your business applications an interface that works with myriad wireless devices. We tested seven of these mobile application development tools. Each company claims its tool works with more devices, takes advantage of more wireless device features, is painless and quick to use, adheres to industry standards and is scalable and secure. The seven wireless application environments were Air2Web's Mobile Internet Platform 2.1, Aligo's M-1 Mobile Application Server 1.0, AnyDevice's GoAnywhere Platform 2.32, iConverse's Mobile Studio 2.0 and Interaction Server 2.0, MobileQ's XMLEdge 2.6, ViaFone's OneBridge Mobility Platform

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|---|---|
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| Supports up to 300 hits per second[2] | Supports up to 5,000 requests per second[2] |
| Standard multimedia streaming support | Standard multimedia streaming support |
| Intel® Pentium® III processor 866MHz[3] | Intel Pentium III processor 866MHz |
| 384MB[4] SDRAM (expandable to 4GB) | 1GB SDRAM (expandable to 4GB) |
| Dual 18.2GB[5] Ultra160 SCSI hard drives (expandable to 72.8GB) | 18.2GB Ultra160 SCSI hard drive (expandable to 72.8GB) |
| Integrated dual 10/100 Ethernet | Integrated dual 10/100 Ethernet |
| IBM Director system management software | IBM Director system management software |
| 90-day Startup Support | 90-day Startup Support |
| 3-year parts and onsite labor limited warranty[6] | 3-year parts and onsite labor limited warranty |
| Part #865437X | Part #865438X |
| **$8,439[7]** | **$16,170** |
| **SuccessLease™ for Small Business $280/MO.[8], 36 MOS.** | **SuccessLease for Small Business $521/MO., 36 MOS.** |

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**APC Smart UPS 1400RMB Universal Power Supply**
(Part #94G6674) $1,009 or $36/month

There are three ways to boost Web-hosting performance: (1) spend a lot of money on servers; (2) spend a lot of money on bandwidth; (3) spend less money on the IBM Internet Caching Appliance (ICA), and dramatically accelerate the performance of the Web servers and communications lines you already have.

If you want to improve Internet delivery to your employees, the forward proxy ICA stores frequently requested Web pages – offloading up to 70% of user requests (dramatically accelerating overall Web speed). That means you won't have to buy servers or additional bandwidth so often.

Your ICA solution comes preloaded on a number of select IBM @server xSeries models specifically configured to meet your needs. For example, the amazingly compact xSeries 330-based models featured here are powerful and reliable, but at less than 2" thin and expandable to 72.8GB, they leave plenty of room for growth. This model also offers advanced serviceability and manageability features like Light Path Diagnostics™ to speed and simplify component replacement. Plus, they're easy to install. Simply choose the xSeries appliance that's right for your business, plug it in and you're up and running quickly.

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Review,
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2.0 and Wireless Knowledge's Echo 1.1.253.

Our tests (see "How we did it," www.nwfusion.com, DocFinder: 4827) showed the best tool for extending an application into the wireless realm was iConverse's Mobile Studio and Interaction Server, which won our Blue Ribbon Award. Although ViaFone's device attributes and parameters table are better organized, and Aligo's M-1 Mobile Application Server has a better architecture, iConverse's Mobile Studio and Interaction Server won for its depth of support for a range of devices and superior user interface.

## Wireless sets

IConverse's Mobile Studio and Interaction Server gave the best access to our wireless handheld's features, followed closely by ViaFone's OneBridge and AnyDevice's GoAnywhere Platform.

IConverse's Mobile Studio and Interaction Server has at its core an extensive database of device characteristics. The database isn't relational, but it helps Mobile Studio and Interaction Server support virtually every existing model of WAP, PDA, two-way pager, iMode device and pure voice device. Mobile Studio and Interaction Server work with handhelds that understand Wireless Markup Language (WML), Handheld Device Markup Language (HDML), Compact HTML (CHTML) and HTML. Moreover, the level of browser control rivaled OneBridge's in our tests. Whether working with the Palm PQA or the GoAmerica network browsers, Mobile Studio and Interaction Server's wireless device displays always looked good.

We liked ViaFone's parameterized, table-driven approach to supporting a range of different mobile devices in OneBridge. OneBridge's hierarchical table of device attributes, which ViaFone calls the Universal Device Library (UDL), quantifies and parameterizes mobile device details such as user agent (for example, combination of browser and operating system), screen details (size, number of lines, character count limit, color and graphics rendering features), I/O capabilities and cache size.

ViaFone populates OneBridge's device attributes table with a lengthy list of devices. OneBridge has optimized support for 20 WAP phones, five PDAs and two Research In Motion (RIM) pagers, and the table contains specific device support for dozens of wireless handhelds, including phones, iMode devices and PDAs. Further, OneBridge has generic support for clipped HTML, iMode-CHTML, WML, the Nokia WAP browser, the Ericsson WAP browser, the Phone.com (OpenWave) WAP browser, an HDML-compatible browser, the Neomar browser and the 4th Pass K-browser. New to OneBridge 2.0, released just as we finished this review, is VoiceXML and generic interactive voice response (IVR) support. Although the new voice feature arrived too late for us to test in the lab, a demonstration that ViaFone provided was remarkable.

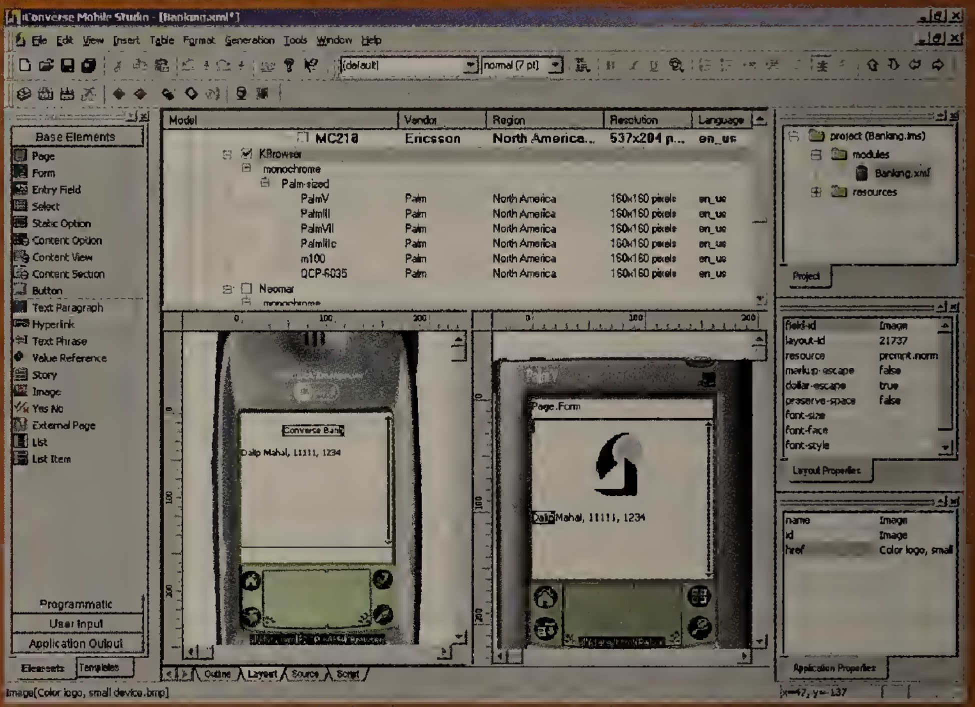
OneBridge's Mobile Presentation Server component dynamically optimizes the rendering and presentation of the application's data according to the mobile device's UDL attributes. Because Mobile Presentation Server has a wealth of information about a device's form factor, screen size, number of lines, browser version, graphics/image/color support, I/O capabilities, soft keys, touch screen, network bandwidth and gateway properties, it knows exactly how to best use markup language features for that device.

Like ViaFone's OneBridge, AnyDevice's GoAnywhere Platform is table-driven, but GoAnywhere Platform's table lacked ViaFone's hierarchical approach and thus was not as well organized. Nonetheless, GoAnywhere Platform supports a long list of WAP/WML phones, PDAs, two-way pagers, iMode devices and pure voice devices.

Air2Web works through standard protocols — rather than specific device parameters — to support a range of handhelds. For one-way (receiving) and two-way (sending and receiving) Short Messaging Service (SMS) devices, Air2Web uses Short Messaging Service Channel (SMSC) technology to present up to 160 characters of application data on SMS-compliant pagers. For WAP phones, Air2Web sends WML Version 1.1, 1.2 or 1.3, and Air2Web also supports HDML Version 3.0 and 4.0. For HTML-aware PDAs, such as the Palm V and Palm VII, Air2Web uses HTML Version 3.2 or 4.0. Air2Web supports iMode devices that use Japan's DoCoMo technology to exchange Internet data via CHTML Version 1.0 or 2.0 as well as J-phone devices using Mobile Markup Language (MML) Version 1.0 or 2.0. Air2Web can integrate with IVR technology to support pure voice-based applications.

Aligo's M-1 Mobile Application Server contains specific device support for Palm and Handspring PDAs, WAP/WML phones, iMode phones, RIM pagers and Windows CE wireless handhelds.

MobileQ's XMLEdge supports 16 WAP phones, six PDAs and four RIM Blackberry pagers, and it also works with Windows CE devices. Wireless Knowledge's Echo is standards-based, using WML, HDML, HTML (simple content for non-Javascript devices such as Palm PDA browsers or HTML 4.2 for more sophisticated devices), CHTML and clipped HTML. Echo's WML works equally well with Phone.com and Nokia/Ericsson user interfaces.



| Model | Vendor | Region | Resolution | Language |
|---|---|---|---|---|
| MC218 | Ericsson | North America... | 537x204 p... | en_us |
| KBrowser | | | | |
| monochrome | | | | |
| Palm-sized | | | | |
| PalmV | Palm | North America | 160x160 pixels | en_us |
| PalmIII | Palm | North America | 160x160 pixels | en_us |
| PalmVII | Palm | North America | 160x160 pixels | en_us |
| PalmIIIc | Palm | North America | 160x160 pixels | en_us |
| m100 | Palm | North America | 160x160 pixels | en_us |
| QCP-6035 | Palm | North America | 160x160 pixels | en_us |
| Neomar | | | | |
| monochrome | | | | |

| | |
|---|---|
| field-id | Image |
| layout-id | 21737 |
| resource | prompt.norm |
| markup-escape | false |
| dollar-escape | true |
| preserve-space | false |
| font-size | |
| font-face | |
| font-style | |

| | |
|---|---|
| name | Image |
| id | Image |
| href | Color logo, small |

Image[Color logo, small device.bmp]

x=47, y=137

IConverse Mobile Studio's graphical simulations of wireless devices show exactly how the application dialog will appear in actual use.

## Mobile architecture

A highly scalable Enterprise JavaBeans (EJB) application server environment geared to wireless communications, Aligo's M-1 Mobile Application Server's architecture is an impressive, scalable design that most customers will find easy to integrate with existing applications. Mobile Application Server is like having IBM's WebSphere or BEA Systems' WebLogic application server already set up to deliver application data to mobile devices.

M-1 Mobile Application Server's components, which are Java2 Enterprise Edition (J2EE)- and EJB-based, are the AligoServlet, Presentation Engine, Session Manager, Cache Manager, Unified Messaging Services Manager and Data Access Manager. Creating wireless application business logic was simple within M-1 Mobile Application Server. Configuring and extending AligoServlet, which controls the management functions associated with an application, was particularly easy. Aligo's design uses an XML-based property file to identify and control AligoServlet's actions and extensions.

The Presentation Engine delivers a Java application's dynamic content to wireless devices. In our tests, it smartly transformed our business application's dialog material, represented in XML, into device-specific control language. We could even optionally override the presentation output via Extensible Stylesheet Language (XSL), which let us use style sheets to gain control over formatting. Aligo's Presentation Engine also includes support for VoiceXML. Text-to-speech is a simple device-configuration option, and speech-to-text merely requires adding the appropriate application-specific grammar files to M-1 Mobile Application Server. Aligo's Data Access Manager provides Java Database Connectivity.

Interaction Server, iConverse's run-time component, is a Java application that requires a J2EE application server environment, such as BEA Systems' WebLogic (we tested with WebLogic 5.1). For each wireless message an application wants to transmit to a mobile user, iConverse Interaction Server identifies the user's specific device, renders the appropriate response and then dynamically serves the content in a format that takes advantage of the features of that device. For pure voice, Interaction Server incorporates iConverse's patent-pending speech technology, called Grammar-by-Example. The result is quicker development because the application designer's grammar specifications are much simpler than for the other mobile application tools we tested.

Like iConverse's Interaction Server, ViaFone's OneBridge runs in a J2EE application server environment. OneBridge consists of Mobile Application Server, Mobile Presentation Server and Mobile Application Repository. Just as we finished this review, ViaFone released another component, called Dialog Server. Using IVR or VoiceXML, Dialog Server gives OneBridge speech-handling capabilities. Among themselves and with respect to the application, OneBridge modules communicate via XML. Mobile Application Server works with your application as your business logic decides the next dialog elements that should appear on the wireless device. Mobile Presentation Server uses Mobile Application Repository and UDL to transform an application's XML representation of wireless content into device-specific markup language.

Out of necessity, Air2Web's Mobile Internet Platform uses a Web-based architecture. Air2Web doesn't distribute its software on CD-ROMs; rather, developers connect to the company's password-protected Web

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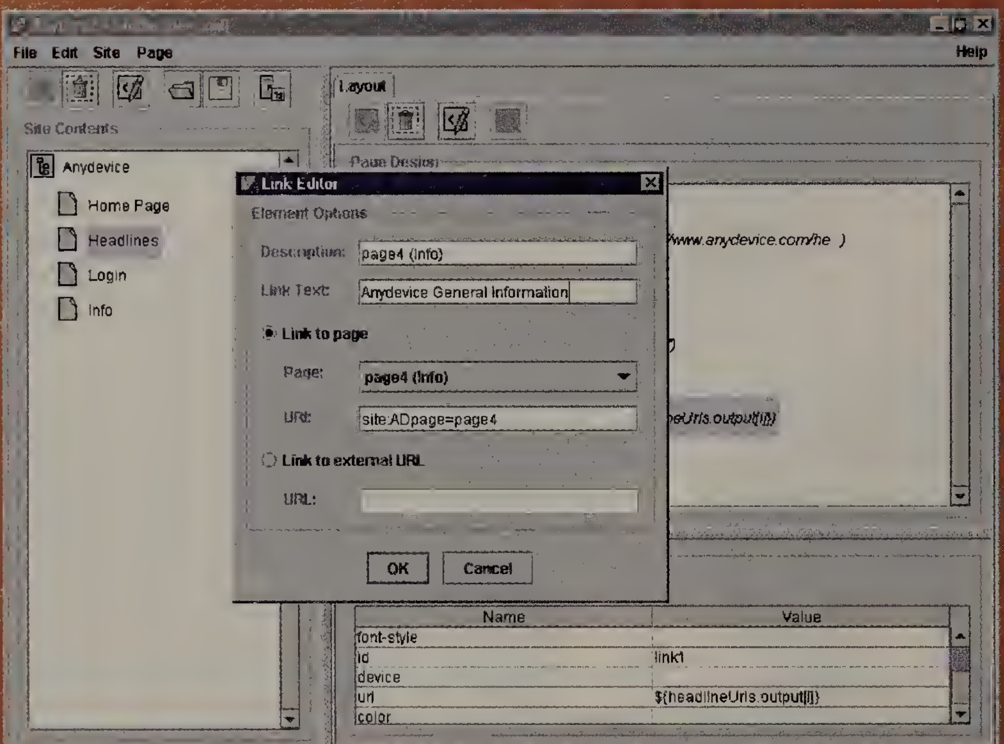
site to create and administer their mobile applications. At run time, users connect to Air2Web to use their applications, and the Air2Web Mobile Internet Platform software manages the production environment.

Mobile Internet Platform is almost completely XML-based. All application dialogs, for development and production, consist of XML requests and responses the developer creates. Via HTTP or Secure-HTTP, Air2Web sends your application an XML message from a wireless device. Your application decides how to respond to the message and returns an XML message to Air2Web, which formats the response according to the device characteristics of the wireless device involved in the session. Mobile Internet Platform uses XML messages to register an application and its objects (which might include style sheets, audio files and predetermined XML messages), register the wireless application dialogs that you design, identify wireless users and their devices, and carry on dialogs with wireless devices.

On one hand, you use whatever programming languages and operational environment your organization prefers with Air2Web's Mobile Internet Platform. On the other, your ongoing production application depends on Air2Web's company facilities and network infrastructure to a much greater degree than with other mobile application tools. The result is somewhat akin to an outsourcing arrangement. We feel that retaining complete, in-house control over the running of an application is the best approach, but you might not agree. During our tests, Air2Web's development and production facilities were reliably available to us on a 24-7 basis (including Sundays at midnight and later).



Description: page4 (Info)
Link Text: Anydevice General Information
● Link to page
Page: page4 (Info)
URL: site:ADpage=page4
○ Link to external URL
URL:

| Name | Value |
|---|---|
| font-style | |
| id | link1 |
| device | |
| url | ${headlineUrls.output[i]} |
| color | |

AnyDevice Studio offers drag-and-drop assembly of application dialog components.

At Air2Web's Web site, Mobile Internet Platform consists of API Requester, Application Administration, Audio Administration, Conversation Administration, Style sheet Administration, Subscriber Administration and XML Administration browser-based tool interfaces. API Requester is a test driver for verifying the correct formatting of XML messages. Application Administration sets up or modifies information about an application, which includes the name of the application, whether it shares data with other applications and whether Air2Web or the customer is responsible for wireless device confirmations. The other Web interfaces store audio files, dialog elements, style sheets, lists of authorized wireless users and XML files.

With AnyDevice's GoAnywhere Platform, your application uses the vendor's device-neutral but proprietary language, called SiteXML, for controlling wireless application request/response processing. During development, each application dialog element is expressed in SiteXML and then the application is designed to send the GoAnywhere Platform any SiteXML statements appropriate to the current conversation. AnyDevice Studio is a visual design environment that emits the proprietary SiteXML statements.

The run-time GoAnywhere Platform is a Java application that consists of the Mobility Engine and the Personalization and Notification modules. The Mobility Engine carries on dialogs with wireless devices and with the Java application modules you develop. The Personalization and Notification modules, which consist primarily of AnyDevice Organizer and AnyDevice Manager, let users unobtrusively customize their wireless access and help administrators monitor the running of the application in the AnyDevice environment.

If the application design calls for the use of a relational database for user authentication, AnyDevice requires that it be Oracle Version 8.1.6 or higher with the Oracle Obfuscation Toolkit. AnyDevice supplies scripts for building the appropriate database objects and schemas.

MobileQ's XMLEdge components include Designer, XMLEdge Server and associated transports, a collection of system administration tools and a testing tool. XMLEdge Server hosts forms that contain Runtime Markup Language (RML) — a proprietary MobileQ XML-like representation of the wireless application dialog. XMLEdge Server also uses RML internally to express session state and application data. Architecturally, XMLEdge Server consists of Transport modules, which are device-specific components for dealing with particular kinds of wireless devices; the Executive module, which controls the flow of application logic according to the responses it receives from wireless devices; and the Metabase, which stores XMLEdge configuration data. Connector modules also help XMLEdge communicate with a database, the application server environment and the application. For scalability, XMLEdge supports hardware or software load-balancing technology.

The system administration components for configuring XMLEdge Servers are a local administration control tool, a server farm manager, a deployment manager and a virtual directory maintenance utility. With these, administrators can make general configuration changes and set up MobileQ Web Redirector. To change Metabase configuration data, an administrator uses the Solaris xemb utility or, for Windows, a registry editor. The System Test Tool is a test driver for verifying conversations without the presence of the application.

Wireless Knowledge's Echo runs within Microsoft's Web server, Internet Information Server (IIS), which only runs on Windows servers. The vendor, a company created by Microsoft and Qualcomm, will offer non-Windows versions of Echo. However, we're skeptical of Microsoft (or a subsidiary) when it promises to produce a non-Windows version of its software.

Echo is a transformation engine that attaches to IIS and listens for requests from wireless devices. When a Web-enabled mobile device requests a Web page, Echo identifies the device to determine what kind of markup language the device uses and then translates a Web application's HTML into that markup language. For example, it sends HTML to Palm devices, WML or HDML to cell phones, and CHTML to iMode devices. Echo acts as a late-in-the-flow HTML filter to modify Web pages after they leave the Web server but before the pages become network traffic. As a result, only Echo knows it's communicating with a wireless device. To the extent that the application's Web page output is already WML-like and simple enough to be translated for a wireless device's small display on an almost one-for-one basis, the application remains unchanged and "wireless-unaware." In this situation, Echo completely insulates the application from the wireless device. In more complex (and likely) situations, designers of Echo-based applications need to partition their presentation material between wireless and nonwireless.

## Easy wireless

IConverse Mobile Studio's graphical design environment amazed us with its visual representation of wireless device behavior, intuitive tool set and ability to connect to relational databases for data content preview purposes. As we assembled our application dialogs, the iConverse design environment accurately depicted the effect of our dialogs by showing exactly how the dialog would appear on any device. Creating wireless displays for our applications by using iConverse Mobile Studio was quick and painless. We also appreciated Mobile Studio's visual content-shaping technology, which transformed XML into a format better suited for wireless presentation purposes.

The AnyDevice GoAnywhere Platform design environment rivals that of iConverse. It isn't quite as intuitive but what the AnyDevice Studio lacked in productivity it made up for with its excellent visual preview of wireless device behavior. AnyDevice Studio offers floating tool palettes, drag-and-drop assembly of application dialog components, expandable tree directories and context-sensitive toolbars and controls.

MobileQ's XMLEdge Designer graphical design environment has toolbars for creating and manipulating XMLEdge forms, uses drag-and-drop to help designers place dialog elements in the visual workspace and pops up dialog boxes to capture design properties such as hyperlinks, permitted dialog events and style-sheet relationships.

Aligo released an optional visual development tool called Application Builder just as we finished this review. Application Builder is a welcome addition to M-1 Mobile Application Server, which sorely lacks a visual dialog assembly and preview function for wireless content in our tests.

Air2Web's Web-based Mobile Internet Platform development environment, which operates over the 'Net rather than locally on your computer, doesn't help much with the dialog assembly chores. The development environment consists of administration utilities for storing application-related files at the Air2Web DevCenter. For XML you issue during testing, Air2Web's

See **Review**, page 64

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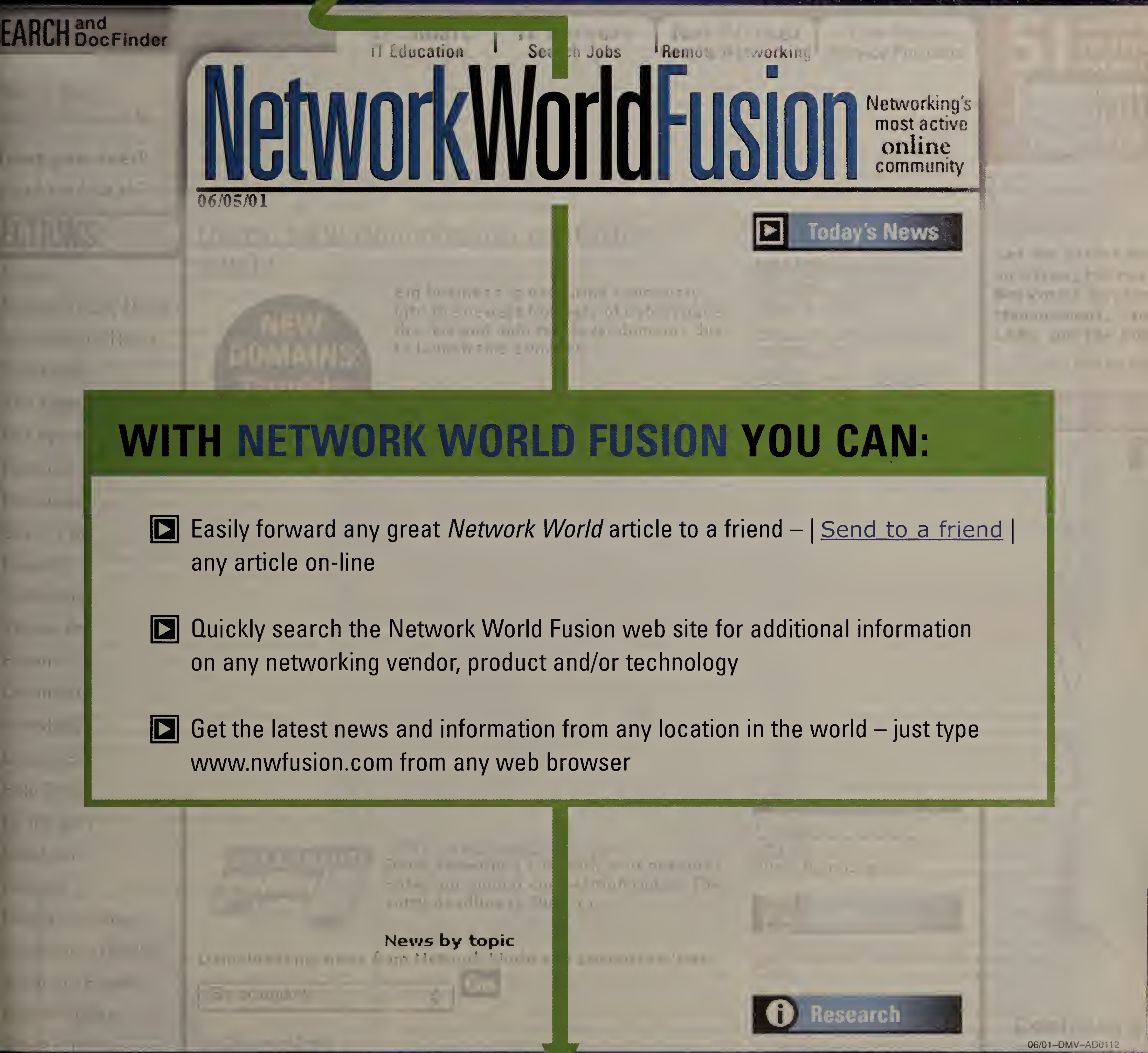

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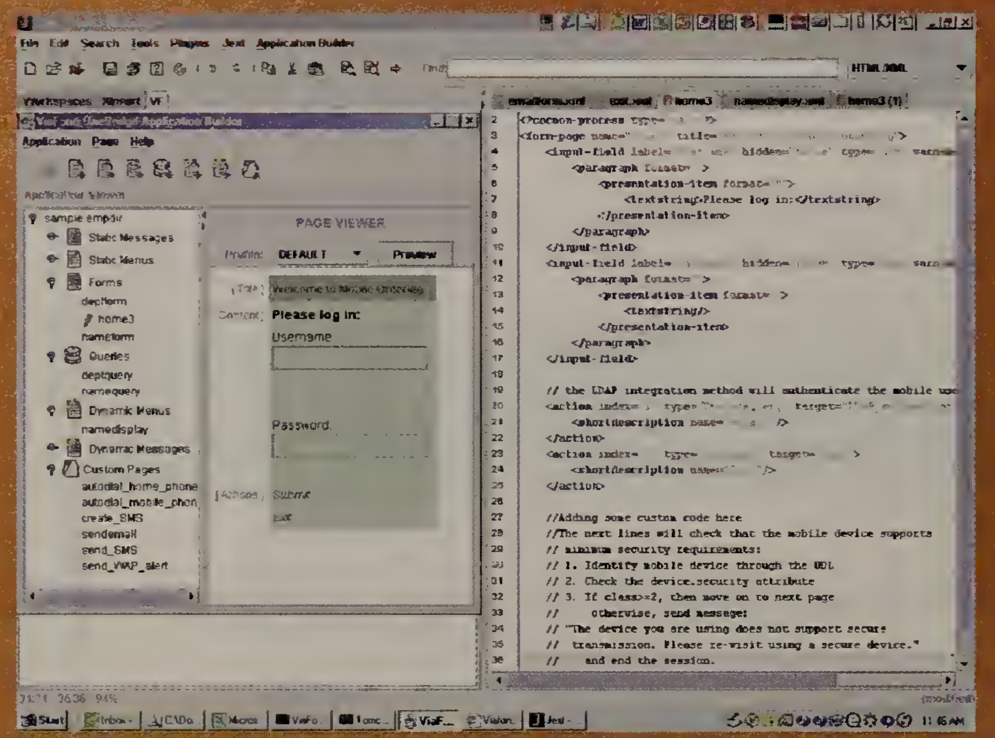
Review,
Continued from page 62

DevCenter will perform a syntax check to tell you whether the XML conforms to the Air2Web Document Type Definition for mobile wireless applications.

ViaFone's OneBridge gives wireless dialog designers a visual design tool called Application Builder, which offers a tree view of application dialog elements, an XML text editor and a preview pane to monitor the behavior of a wireless device as it responds to the application data. However, ViaFone's preview pane isn't nearly as visually compelling or feature-rich as iConverse's or AnyDevice's. ViaFone's Application Builder includes helpful Page Builder wizards for initially establishing each application dialog. The Page Builder wizards create XML frameworks that then populate via Application Builder's text editor.



```
<?cocoon-process type= >
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        <paragraph format= >
            <presentation-item format= "">
                <textstring>Please log in:</textstring>
            </presentation-item>
        </paragraph>
    </input-field>
    <input-field label=      hidden=     type=     varn
        <paragraph format= >
            <presentation-item format= >
                <textstring/>
            </presentation-item>
        </paragraph>
    </input-field>

    // the LDAP integration method will authenticate the mobile use
    <action index=   type=           target=
        <shortdescription name=     />
    </action>
    <action index=   type=           target=     >
        <shortdescription name="     "/>
    </action>

    //Adding some custom code here
    //The next lines will check that the mobile device supports
    // minimum security requirements:
    // 1. Identify mobile device through the UDL
    // 2. Check the device.security attribute
    // 3. If class>=2, then move on to next page
    //     otherwise, send message:
    // "The device you are using does not support secure
    //  transmission. Please re-visit using a secure device."
    //    and end the session.
```

**The ViaFone OneBridge Application Builder offers a tree view of wireless dialog elements, an XML text editor and a preview pane for animating the application dialog.**

Wireless Knowledge's Echo uses the Microsoft Management Console (MMC) Windows-based interface for configuration and specification of application dialog HTML-to-wireless translations — another reason we're skeptical the company will some day release a version of Echo that works on non-Windows computers. Within MMC, an administrator uses a Web site's or virtual directory's Mobility tab on its property sheet to enable or disable Echo's translation processing for that site or directory, manage error logging and manage device detection configurations. Echo uses these device detection specifications to identify the model of wireless device associated with each dialog session.

Developers of an Echo-based application can insert script language statements (such as <echo-choose>, <echo-when> and <echo-otherwise>) into a Web site's HTML to designate which portions of a Web page Echo should send to a wireless device. Alternatively, developers can create wireless-only Web pages containing HTML intended only for use by a wireless device.

Standards are a slippery, moving target in the fledgling mobile wireless application arena. For example, almost all cell phone manufacturers claim support for WAP and WML, but we noted that five of the seven software tool vendors in this review have found it necessary to incorporate the detection and handling of specific wireless devices in their mobile application software tools.

All seven tools support WAP/WML, XML and HTML. Air2Web, AnyDevice, iConverse and ViaFone support VoiceXML, and Aligo says its VoiceXML support should be available early this summer. Air2Web supports clipped HTML, SMS, generic IVR, iMode and J-phone standards. Aligo supports clipped HTML, HDML and XSL. AnyDevice uses XSL and HTML, while iConverse has embraced standards for HDML, clipped HTML, SMS, generic IVR, iMode and J-phone. ViaFone also supports SMS, HDML and iMode devices.

ViaFone's OneBridge Mobility Platform offers the best security in a wireless application environment. OneBridge incorporates Secure Sockets Layer (SSL), Wireless Transport Layer Security (WTLS) and public-key infrastructure (PKI) to keep wireless dialogs authentic, private and unmodified in transit.

For security, Air2Web's Mobile Internet Platform uses digital certificates, which you identify when you use Air2Web's DevCenter to create a new application. Because Air2Web becomes your business partner as you design and roll out your mobile application interface, you can also use whatever additional security schemes you and Air2Web agree on.

Aligo's M-1 Mobile Application Server uses the Lightweight Directory Access Protocol for user authentication and PKI for data privacy. AnyDevice's GoAnywhere Platform employs an Oracle database for user authentication and the Oracle Obfuscation Toolkit to encrypt passwords traveling across a network.

The iConverse Interaction Server relies on SSL and incorporates WTLS to keep data confidential. MobileQ says XMLEdge can encrypt wireless communications, but doesn't say which encryption method it uses. Wireless Knowledge says Echo is compatible with SSL and WTLS, but these are options you acquire separately and integrate into your application.

We evaluated platform neutrality in terms of the run-time server environment and the breadth of wireless devices each product supports. The run-anywhere server components of the Java-based tools — M-1 Mobile Application Server, GoAnywhere Platform, iConverse's Mobile Studio and Interaction Server, and ViaFone's OneBridge Mobility Platform, — contributed to the tools' scores, while MobileQ's XMLEdge and Wireless Knowledge's Echo suffered somewhat. Because it has Windows and Unix versions, XMLEdge is more platform agnostic than Echo, which is Windows-centric.

The Internet-based Air2Web Mobile Internet Platform is highly neutral with respect to development and run-time platforms. For wireless application development, any computer with a browser for accessing the company's Web site and a text editor for creating XML will suffice. Mobile Internet Platform works with a range of wireless devices, including pure voice cell phones, SMS devices, WAP/WML phones, PDAs, iMode devices and J-phone devices.

Three products — iConverse's Mobile Studio and Interaction Server, AnyDevice's GoAnywhere Platform and ViaFone's OneBridge Mobility Platform — exhibited a high degree of platform neutrality with respect to handheld devices. Mobile Studio and Interaction Server and GoAnywhere Platform support WAP/WML phones, PDAs, two-way pagers, iMode devices, voice and a range of specific handheld models. However, OneBridge handles the greatest number of wireless devices, including WAP/WML phones, PDAs, two-way pagers, iMode devices, HTML browsers, clipped HTML, iMode (CHTML) browsers, the Nokia WAP browser, the Ericsson WAP browser, the Phone.com (OpenWave) WAP browser, the Neomar browser, the K-browser browser, VoiceXML and generic IVR.

Aligo's M-1 Mobile Application Server works with Palm PDAs, Handspring PDAs, WAP/WML phones, iMode phones, RIM pagers and Windows CE devices. MobileQ's XMLEdge recognizes 16 WAP/WML and HDML phones, six PDA models and four RIM pagers. Wireless Knowledge's Echo understands WAP/WML (for Phone.com and Nokia/Ericsson user interface variants), HDML non-Javascript HTML devices, HTML 4.2 browsers, CHTML and clipped HTML.

## Installation and documentation

Six of the products installed quickly and easily via CD-ROM, while the seventh, the Internet-based Air2Web Mobile Internet Platform, needed no installation. You'll need to install a J2EE application server environment before loading iConverse's Interaction Server or ViaFone's OneBridge onto one of your servers. For AnyDevice's GoAnywhere Platform, you'll first need to install Oracle Version 8.1.6 or higher with the Oracle Obfuscation Toolkit.

Air2Web's documentation is online at the company's Web site. Aligo, iConverse, MobileQ and Wireless Knowledge provide electronic documentation with their products, and only AnyDevice and ViaFone supplied printed manuals. Whether online, electronic or printed, the documentation for all the products proved to be clear, straightforward and more than adequate for creating mobile applications.

## Conclusion

When you embark on a wireless project to extend a business application the last mile, we strongly suggest you look first at iConverse's Mobile Studio and Interaction Server, AnyDevice's GoAnywhere Platform and ViaFone's OneBridge Mobility Platform. In particular, Mobile Studio's and Interaction Server's easy-to-use visual design environment, comprehensive support for wireless handheld devices and excellent scalability make it the tool of choice.

*Nance, a software developer and consultant for 29 years, is the author of* Introduction to Networking, 4th Edition *and* Client/Server LAN Programming. *He can be reached at barryn@erols.com.*

*Nance is also a member of the Network World Global Test Alliance, a cooperative of the premier reviewers in the network industry, each bringing to bear years of practical experience on every review. For more Test Alliance information, including what it takes to become a member, go to www.nwfusion.com/alliance.*

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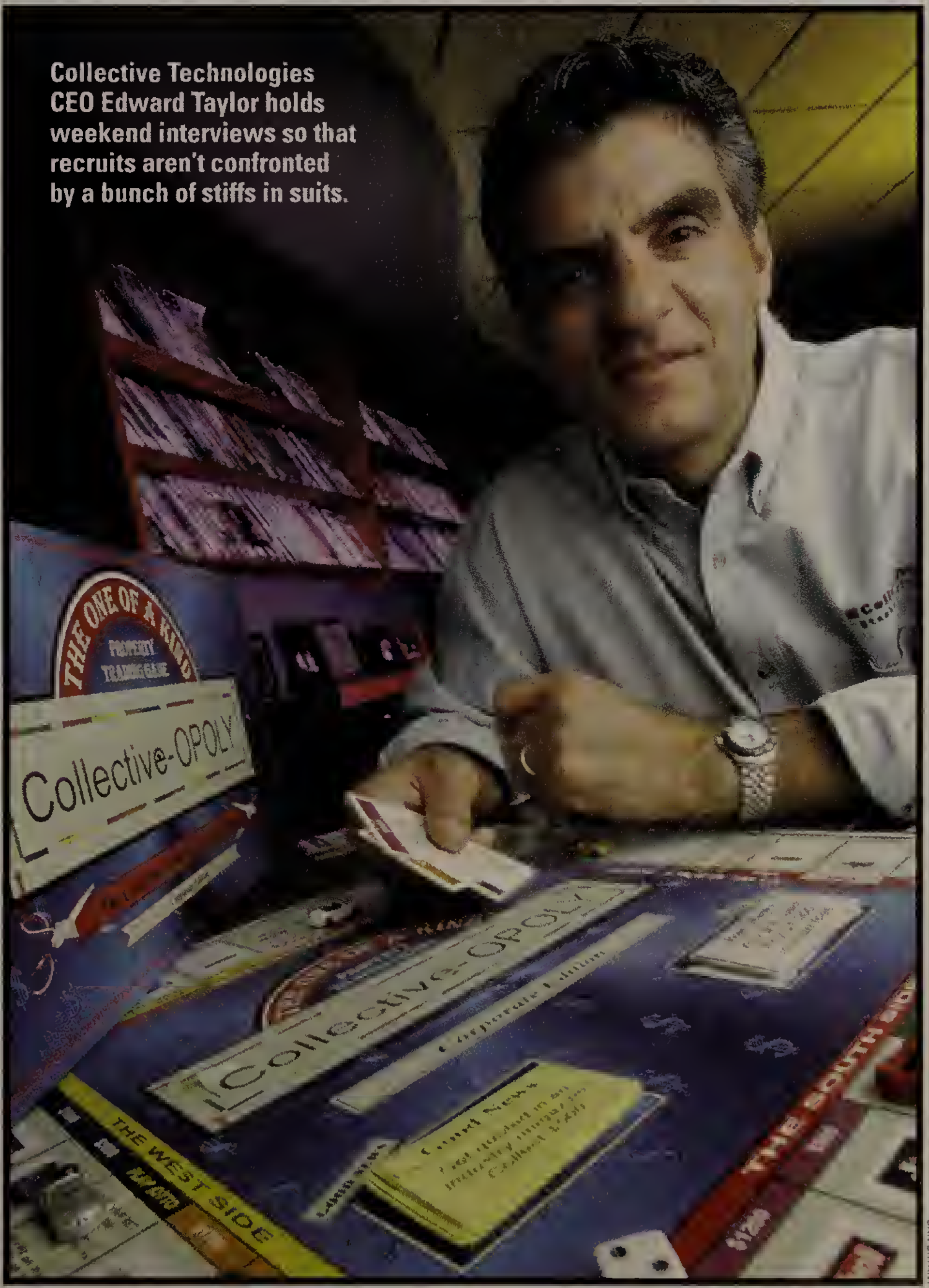
# Extreme interview

**Intense 'hiring weekends' let employees choose future co-workers.**

BY PAUL MCNAMARA



Collective Technologies CEO Edward Taylor holds weekend interviews so that recruits aren't confronted by a bunch of stiffs in suits.

DAN BRYANT

There was something about watching one employee stoop to tie another's dangling shoelace that helped convince Cynthia Reese she wanted to work for Collective Technologies.

That something? The guy doing the stooping was CEO Edward Taylor, a fact she learned later when he made a speech.

Such glimpses into the personal dynamics of a company generally aren't part of the interview process. But they have been at the Austin, Texas, company Collective, where periodic "hiring weekends" at resort hotels have helped humanize the process by supplanting the dreaded, often unproductive office-to-office shuffle of job candidates.

You might think of these weekends as combining the recruitment and social aspects of a fraternity rush with the intellectual intensity and high stakes of college finals.

Taylor claims — and his charges confirm — nothing but positive results from this unorthodox approach: 75% of invited attendees are offered jobs, and 75% accept. Although Collective is rumored to be downsizing due to the economy, the technique boosted employee retention and created a corporate culture that puts a premium on sharing hard-to-find technical knowledge.

"If you use your hiring process to begin the process of socialization, then you can continue it very easily once people are on board," Taylor says. His employees — they're actually called "members" — provide IT infrastructure management services to the likes of American Express, Bristol-Myers Squibb and Morgan Stanley.

Although suspended for the moment, these hiring weekends have been a company cornerstone since Collective was founded in 1994. They are held throughout the country in inviting locales such as Cheyenne Mountain Resorts in Colorado Springs, Colo., The Lansdowne Resort in Leesburg, Va., and The International in Bolton, Mass.

The events bring together about 15 job seekers with roughly three times as many Collective members, both management and rank-and-file. The candidates are prescreened, first by outside recruiters, then in evening telephone interviews conducted by Collective members. The employee group does the hiring, with each individual holding veto power over any candidate.

You're thinking this sounds costly, right? "It's probably the single most expensive way to hire I have ever seen," Taylor acknowledges. He estimates his $15,000 per-hire tab is roughly double traditional methods.

But he insists it's worth every penny. And those who have participated swear by the process.

"You tend to relax and be more of yourself, which is important for both sides," says Andy Silver, a senior consultant with Collective for three years. "You don't want to [fast-talk] your way into a job when three months later somebody is going to walk you out the door. On the other hand, from the point of view of the company, we don't want to hire somebody we're going to have to walk out the door."

The weekends are designed to let both parties understand each other at a depth rarely accomplished through traditional interviews. Taylor says the recruits realize they're encountering something different as soon as they show up Friday night and wade into the opening reception.

"As the evening wears on, and it does sometimes go quite late, you become socialized very quickly," he says. "Your guard's down. You realize you're not being confronted with a bunch of stiffs in suits, you're just hanging out with really great systems managers."

Saturday morning brings "four hours of PowerPoint bombardment," Taylor says, where "you're taken through the entire history of the company; everything's laid bare." The purpose is to get the prospects to buy into the Collective program.

"After lunch comes the hard part," he says. "It's three back-to-back, in-your-face, rip-your-guts-out technical interviews."

Which can be an eye-opener for the candidates. "I came to the weekend thinking I was pretty knowledgeable in the technology," says Joshua Canary, a Collective senior consultant. "I left hoping I was good enough to get an offer."

"The same people who were buying me drinks and telling me stories on Friday night were brutalizing me during our technical sessions Saturday afternoon," he adds.

Saturday evening brings more good times. The members say these social gatherings can be more important in terms of judging prospects than the formal sessions.

Sunday morning the job seekers hear more about the company from the Collective members who are about to pass judgment on them. The prospects head home that afternoon while the members discuss who will receive job offers.

The single-veto provision has occasionally cost the company a quality candidate, Taylor acknowledges, but he considers that a small price for the group buy-in the process produces. He does not believe the social aspects of the weekend compromise the hiring group's ability to make objective decisions.

By Monday the winners and losers know their fates.

"If you hire this way, the hiring decisions aren't made by management, they're made by the team members themselves," Taylor says. "And that becomes essential because we expect that from the first moment that new-hire walks into Collective that every member of the company will be willing to stand in support of them technically in any way they possibly need."

Even tying the occasional shoelace. ◪

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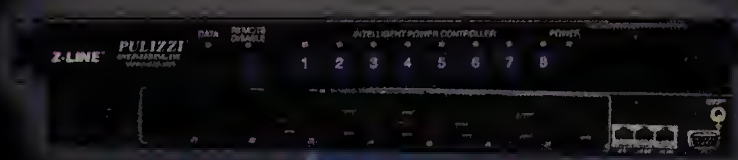

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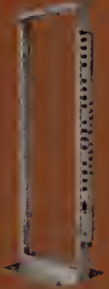

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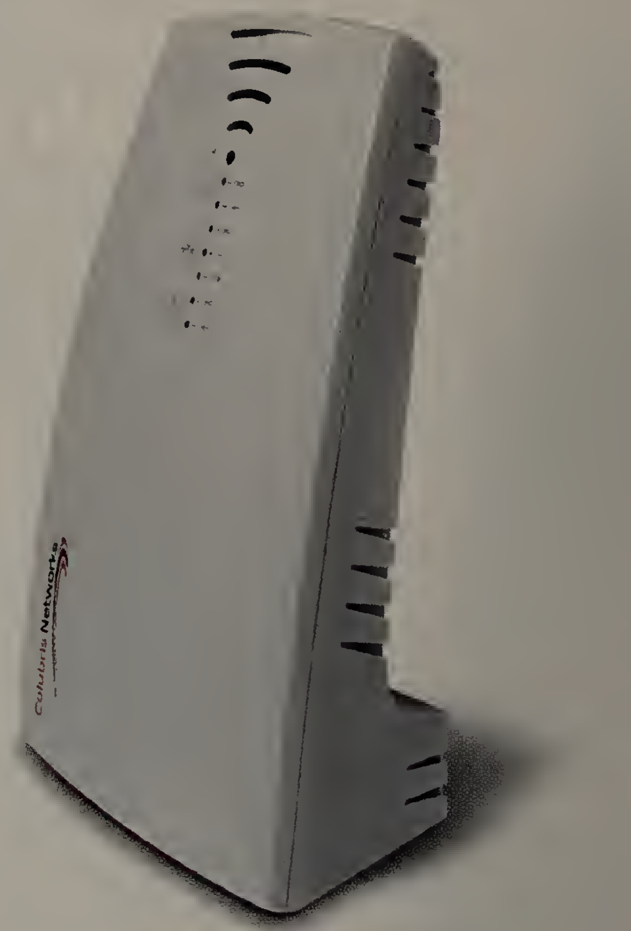

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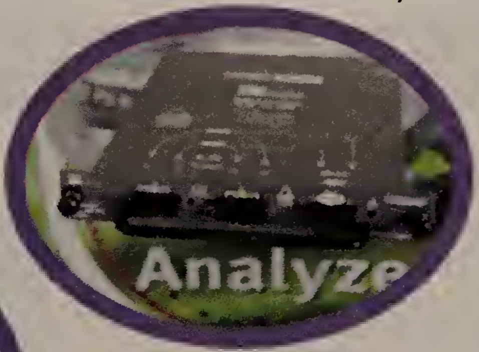

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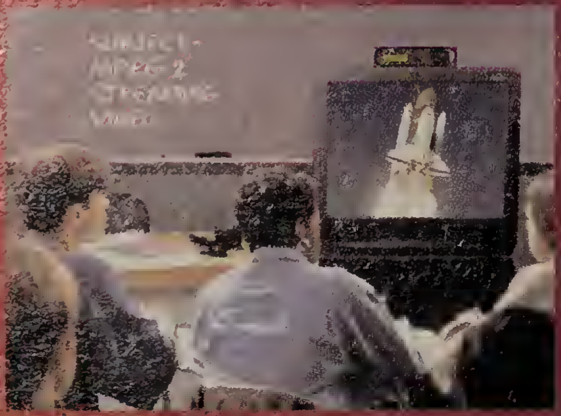

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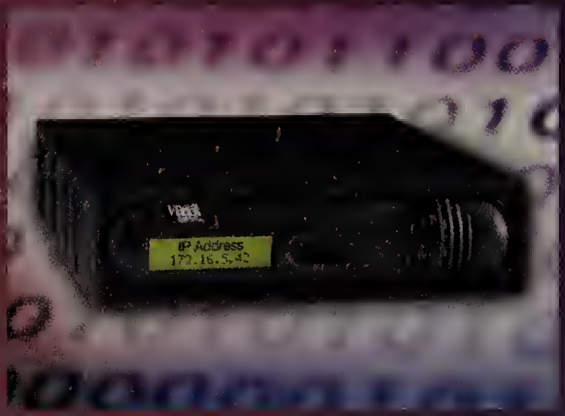

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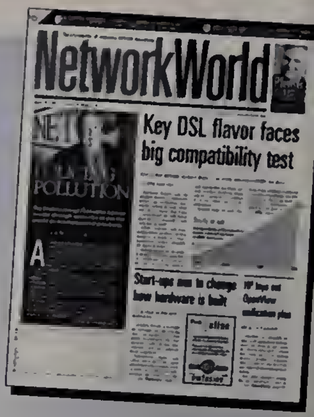
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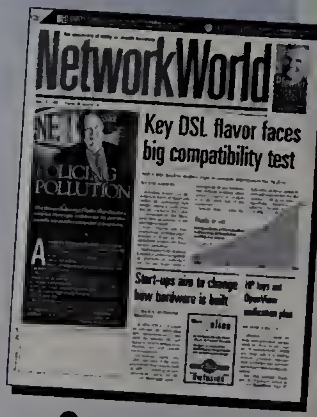
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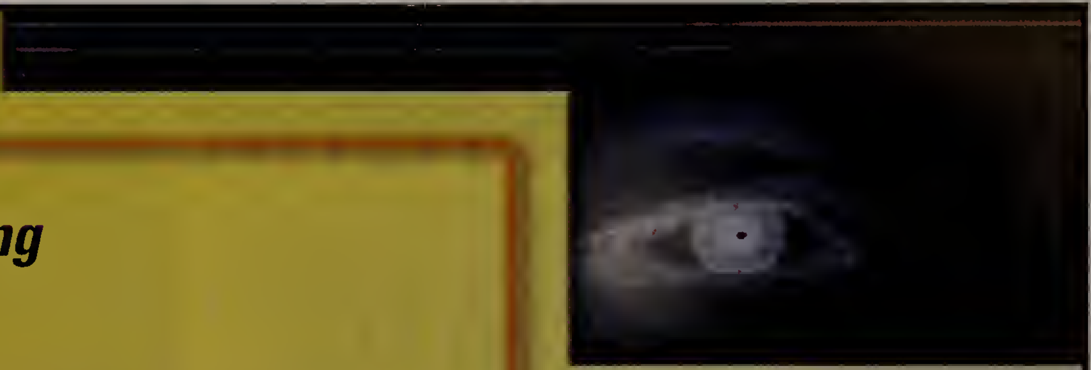

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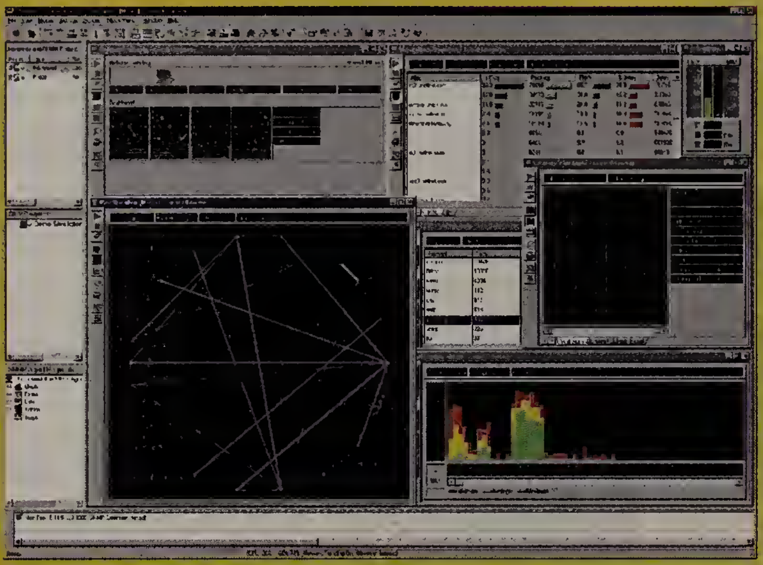

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**APAR INFOTECH CORPORATION**

Multiple positions available for Programmer Analysts, Software Engineers and Project Managers. Must be willing to travel and relocate frequently, must possess work experience in a computer software environment and must have knowledge and proficiency in one or more tools in any of the following skill sets:

**DBA**: Oracle; Sybase

**ERP/CRM:** SAP R3; ABAP/4; Application Modules; Oracle Applications and tools; Broadvision; Siebel; Clarify; Vantive

**Mainframe:** UNISYS 2200; IMS DB/DC; DB2; CICS; COBOL; MVS; ADABAS; NATURAL

**Midrange:** AS400;JD EDWARDS

**Client Server:** Visual Basic, ASP; ColdFusion; SQL Server; Oracle; Sybase; Developer 2000; Designer 2000; PowerBuilder; UNIX; C; C++, VC++, OOAD; Java: HTML; Active X; E-Commerce; Unix System Administration; Win NT Administration; Weblogic

Programmer Analyst positions require a Bachelor's degree in Computer Science, Engineering or related field and 12 months of work experience;

Software Engineer positions require a Master's degree or a Bachelor's degree and 5 years of post-baccalaureate, progressive work experience to be equivalent to a Masters degree in Computer Science, Engineering or related field plus 2 years of work experience.

Project Manager positions require a Master's degree or a Bachelor's degree and 5 years of post-baccalaureate, progressive work experience to be equivalent to a Masters degree in Computer Science, Engineering or related field and 2 years of work experience as a Project Team Leader or other project management position. Must be knowledgeable and proficient in estimating time and labor resources necessary to complete project and defining project requirements.

Qualified applicants should submit a resume and cover letter, clearly indicating the position for which the applicant is applying, to:

CW/05/01Recruiting Manager,
Apar Infotech Corporation
160 Technology Dr.
Canonsburgh, PA 15317
(724) 745-7100
Website: www.apar.com
Email: RecruiterMay@apar.com

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Programmer/Analyst sought by company specializing in business software solutions in Denver, CO to work in Denver & other unanticipated job sites in the US. Under close supervision, engage in moderately complex tasks involving developing computer software applications from translated information. Create database queries using AS/400 DB2, Oracle & Microsoft Access relational database management systems. Code, compile & debug software applications using programming language C & proprietary CASE tools. Work is closely monitored. Requires Bachelor's in computer info. systems; working knowledge of coding, compiling & debugging of software applications using programming language C. (Working knowledge may be gained through employment or in an academic setting.) 8am-5pm, M-F; $39,000/yr. Respond by resume to James Shimada, Colorado Department of Labor & Employment, Employment & Training Division, Tower II, #400,1515 Arapahoe, Denver, CO 80202,& refer to Job Order Number JL1119658.

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For over 20 years, **Syntel** employees across North America, Europe, and Asia have helped build advanced information technology systems for leading Fortune 500 companies and government organizations to improve their efficiency and competitiveness. Today, Syntel professionals are building rewarding careers by providing solutions in e-business, CRM, Web Design and Data Warehousing.

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Due to our rapid growth, we have immediate, full-time opportunities for both entry-level and experienced Software Engineers, Consultants, Programmers, Programmer/Analysts, Project Leaders, Project Managers, Supervisors, Database Administrators, Computer Personnel Managers and Computer Operations/Account Managers/Account Executives with any of the following skills:

## Mainframe

- IMS DB/DC or DB2, MVS/ESA, COBOL, CICS
- Focus, IDMS or SAS

## DBA

- ORACLE or SYBASE
- DB2

## Client-Server/WEB

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- Com/DCom
- Web Architects
- Datawarehousing
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- JAVA, HTML, Active X
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- Oracle Applications & Tools
- Lotus Notes Developer
- UNIX System Administrator
- UNIX, C, C++, Visual C++, CORBA, OOD or OOPS
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Programmer Analyst. Develop and maintain online application programs and back-end batch programs; test and document computer programs; evaluate user requests for new programs; and assist users in solving operating problems. Must have Bachelor's degree in Computer Science, MIS, Engineering or related, and knowledge of Oracle, EIS, PL/SOL, Pearl, Crystal Reports, and C. Send resume with cover letter to APAC Customer Services, Inc., Attn: Cindy Corkery, 425 Second St. SE, Box 3300, Cedar Rapids, Iowa 52406.

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NT Administrator - Large bank, Resp. for installing service packs and patches on NT Servers and new printers on print servers for spooling of print jobs. Monitor user permissions to shared folders. Create and modify NT, Exchange, Novell, RightFax accounts. Min. reqs. incl. BA Comp. Science or rel disc & 2 yrs exp in the pos. offd. or as a Systems Analyst, Network Admin. or Programmer. The 2 yrs reqd exp must have incl wk w/ Windows NT network & server design, WINS, DHCP, TCP/IP, domain design & back-up. Must be MCSE. 40hrs/wk, $58K - $95,700, Send resume & cvr. ltr. to Kelly Turner, 1525 West W.T. Harris Blvd. NC 0775, Charlotte, NC 28288-0775.

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PROGRAMMER ANALYST

NE OH Ins. Co. seeks Programmer Analyst to develop, test, document computer programs; Bachelor's degree, min. 2 yrs. exp. in RDBMS/SOL. Resume to Marketing Support Group, 625 Alpha Drive, Highland Hts, OH 44143. No calls.

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Digeo, Inc. seeks Sr. DB Architect for hdqtrs office in Kirkland, WA. DESC: Analyze user reqs.; provide full life cycle dsgn, dev, & impl of Oracle RDBMS & rel dist. apps util SOL, Des 2000, & HLL languages on UNIX &Win NT o/s. REO: BS In CS, Math, Engr., Physics, or equiv. + 5 yrs exp. designing, developing, & implementing RDBMS & rel c/s apps util SOL & HLL on UNIX & Win NT o/s. Prem. sal + bns & benes. Pls reply to HR, Job # DI-101, 8815-122nd AVE NE, Kirkland, WA 98033

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Hyranks, is a growing sw development and consulting company, seeks software engineers who will design, develop, test and implement Client/Server applications. Requires experience in PeopleSoft, Visual Basic, PowerBuilder, Cognos PowerPlay, Oracle, DB2, SQR and Java. 40hrs/wk, M-F 9-5. Resume to: Human Resources, Hyranks Inc, 1931 N. Meacham Rd, Suite 360, Schaumburg, IL 60173.

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PkMS Pronto Developer, Mishawaka IN Design develop code & test modules for NT based integrated whse & transport management sys using Java, C++, & VB with COM/DCOM/MTS tech w/ORACLE & SOL Server databases. Req: MS in comp sci. engg, or related field. $54K & up Resumes to: J Lurey, Manhattan Associates, Inc., 2300 Windy Ridge Pkwy 7th Fl. North, Atlanta, GA 30339

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Database Administrator. Using both technical skill and business knowledge of interaction/integration of various business functions including manufacturing, marketing and accounting, work as both business and technical consultant to the applications group in the design, development, testing and implementation of client/server applications and establish standards for same. Responsibilities include ongoing installation, configuration, support and upgrade of ORACLE Database Server on UNIX and NT platforms. Work with the design groups in project requirements definition, data modeling, software product selection and testing and new systems development processes. Review of database design proposals and promote adherence to design standards. Evaluate and update tools for database administration and tune applications to ensure efficiency and timeliness. Monitor database performance and take proactive actions to ensure database availability. Develop database backup/recovery strategy design and provide DISASTER recovery documentation and procedures. Ensure data security and protection of business secrets. Master of Business Administration Degree is required. One year of experience in job offered or as a Systems Analyst is required. Education and/or experience must include computer management information systems, microcomputer applications, application design, and analysis of interaction/integration of various business functions including manufacturing, marketing, and accounting; support of ORACLE Database Server; UNIX platform software/techniques, and IBM/AIX hardware or parallel server structure. Must have current authorization to be permanently employed in the United States. Annual salary of $52,700 per year. 40 hours/week (8 am - 5 pm). Send resume with Social Security Number to: Indiana Department of Workforce Development, 10 N. Senate Avenue, Indianapolis, Indiana 46204-2277. Attention: Mr. Tim Lawhorn, Reference: I.D.# 8117195.

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Quality Assurance Analyst sought by company specializing in business software solutions in Denver, CO to work in Denver & other unanticipated job sites in the US. Under close supervision, engage in moderately complex tasks involving the testing & quality assurance work on financial & other types of software applications & tools which run in UNIX,AS/400 &/or client/server environments, or are web–enabled & which access relational database management systems. Specifically, use automated test tools, SOL & create test scripts & prototype financial processes & applications,& test them in order to analyze their performance. Work is closely monitored. Identify problems & bugs & report them to development team for re–coding. Re–test the modified processes & applications,& certify that the problems have been resolved. Document technical specifications. Requires Bachelor's or foreign equivalent in bus. admin., finance, or a related field; Working knowledge of testing software applications using SOL & automated test tools. 8am-5pm, M-F; $53,000/yr. Respond by resume to James Shimada, Colorado Department of Labor & Employment, Employment & Training Division, Tower II,#400,1515 Arapahoe, Denver, CO 80202,& refer to Job Order Number JL1119565.

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BrightStar (formerly SCS America) is searching for Siebel and SAP Analysts/Consultants for Basis, Sales, Distribution, HR, or Payroll projects. Send resumes to: BrightStar, 4900 Hopyard Rd., Suite 200, Pleasanton, CA 94588, Attn: HR; or e-mail to resumes@brightstar.com.

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Software Engineer-Participate in the research, design, development, and maintenance of a large-scale healthcare software system, focusing on its web reports. Use Report Server, Oracle, MS-Access, XML, Java Script, M.H.C., IIS, ASDK, Windows NT, Actuate Developer Workbench, Actuate Basic, and other Actuate products. Degree and exp. req'd. Send resume to Recruiter, L.A. Care Health Plan, 555 W. Fifth St., 18th Fl., Los Angeles, CA 90013.

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Software Engineer-Develop software systems, focusing on web-based applications involving integration with legacy systems on IBM mainframe. Duties include creating internet site, writing EJB objects in Java residing in Enterprise Application Server, writing JSP code to access EJB objects, and studying feasibility of migration. Use JSP, Sybase products, HTML, Java, JavaScript, ASP, COM/DCOM, MVS, DB2, SOL server, etc. Degree and exp. req'd. Send resume to President, E Web Technologies, Inc., 15241 Calle Lornita, Chino Hills, CA 91709.

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Senior SAP HR/Payroll Functional Consultants and Senior SAP Financial & Comptroller Functional Consultants. Headquartered in Boulder,CO, Solbourne is looking for Senior SAP HR/Payroll Functional Consultants and Senior SAP Financial & Comptroller Functional Consultants for projects based in CO, KS, AZ, CA & TX. Please send your resume to:

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Solbourne 1790 38th St. #300
Boulder, CO 80301

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"SYSTEMS ANALYST: Analyzes user requirements, procedures, and problems to automate processing or to upgrade existing computer system. Bachelor's degree in Computer Sicent, Engineering or math-related and 2 years of experience in job offered required. Included in those 2 years must have 2 years experience with C, C++ programming languages and 2 years experience with UNIX, MSDOS and Windows 95 operating systems. Must be able to Travel. $71,760/year. Apply by resume only to Immigration Co-ordinator, HRD, Time to Market, Inc., 4010 Moorpark Avenue, Suite 205, San Jose, Ca 95117."

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Kurpan Systems International Corporation (KSI) headquartered in Bloomingdale, IL, is a rapidly growing innovative full-service management consulting firm specializing in a wide range of IT services. We are presently considering applicants for senior and entry-level positions of:

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- Consultants
- IT Professionals
- Project Managers

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**KSI Corporation,**
**Attn: Human Resources**
**303 E Army Trail Rd., Suite 110**
**Bloomingdale, IL 60108**
**Email: careers@ksl-corp. com**

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Systems Programmer wanted by insurance company in Galveston, TX. Must have BS in Computer Science and 2 yrs exp. Respond to: HR Dept., American National Insurance Company, One Moody Plaza, Galveston, TX 77550.

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Senior Project Lead, Englewood, CO & other unanticipated job locs in US. Plan, schedule & direct prep of prgms to process data & solve probs by use of comp: Consult w/managerial & systms analysis personnel to clarify prgm intent, identify probs, suggest changes, & determine extent of prgmg & coding reqd. Assign, coord & review work of prgmg personnel. Analyze test runs on comp to correct or direct correction of coded prgm & input data. Train subordinate in prgmg & prgm coding. Prescribe stds for terms & symbols used to simplify interpretation of prgms. Provide prof'l & tech'l leadership. MS – Comp Sci/Engg/Math/Phy (or foreign deg equiv) w/3 yr exp or BS w/5 yr exp in job offd or related occupation (Sr. IT Project Mgr, S/ware Engr). Req 3 yrs exp as project lead w/supervisory exp. 40 hr/wk. $93K/yr. Application by resume to: CO Dept of Labor & Employment, Attn: Jim Shimada, Tower 2, Suite 400, 1515 Arapahoe St., Denver, CO 80202-2117, ref JO# JL 1119702

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IT CAREERS

# Working for the Best in IT

**The best of information technology firms know they must provide the best in benefits and compensation. It's the other, less-tangible factors that cause a company to rise above the rest – from the colleagues with whom they'll work to the types of projects they'll undertake to the reputation of the company itself.**

Carole Poorman, head of IT Management and Planning Services for **The Vanguard Group** of Valley Forge, PA, says it is the other things that elevate a company to an "A" grade. "We've found that for **Vanguard** it is fostering a positive work environment where people like to come to work, where you find respect as part of the way you work and where IT and the business units work in partnership for the greater good of the company." Unlike many companies, **Vanguard's** leaders also talk about the value of loyalty – crewmembers' (**Vanguard's** term for its employees) loyalty to the company and the company's loyalty to its crewmembers.

"A great example is that in this environment of an economic slowdown and downturn in the financial markets, there have been layoffs right and left among financial services companies and in technology organizations – not at **Vanguard.** That is loyalty demonstrated," says Poorman. The company is listed among *Fortune* Magazine's "Top100 Companies to Work for in America." Recently, **Vanguard** placed second overall in the "Top 100 Innovators" list by *InformationWeek* Magazine.

For potential employees at **Microsoft**, the other factors include providing IT services for the company known as the "brass ring" among technology giants. Valerie Berberoglu, recruiting director for **Microsoft** in Redmond, WA, says one of the first things she hears from satisfied employees is that "they have the opportunity to work with really smart people and with leading-edge technology." Berberoglu adds, "IT is our business, so we understand the importance of the IT organization to the overall success of **Microsoft.** IT is a core competency for us."

Both companies have turnover rates below industry averages and continuously measure employee satisfaction. Anecdotal evidence is also high as **Vanguard's** business-side crewmembers often seek opportunities in IT, and **Microsoft** has a 90 percent acceptance rate on its offers.

To maintain the edge, **Vanguard** has developed entry points for people to transfer into the almost 3,000-person IT organization. **Vanguard** also conducts a career review for each crewmember and holds town hall meetings to discuss the company's strategy and where future opportunities will exist. **Microsoft** offers its IT organization the latest in technology, allowing employees to beta test new products on the corporate network. "This allows IT employees to make a direct impact on what our products will be for other enterprise IT departments," says Berberoglu.

**Vanguard** plans to hire between 300 to 400 new IT employees this year. Positions are available in development for web applications, as well as client/server and mainframe systems. "**Vanguard** offers the full gamut of IT projects," says Poorman. "For example, we're currently developing a new web site for our Flagship and Voyager shareholders, as well as implementing online changes associated with pension reform and the new tax package. Additionally, **Vanguard** is committed to making improvements to better serve our individual and institutional clients. A great example of this is the collaborative browsing that we introduced last year. This technology allows clients and **Vanguard's** financial associates to view the same Vanguard.com screen simultaneously."

**Microsoft** also will continue to grow the number of jobs, as it has every year for its 25-year history. "We have openings for systems and network engineers, application developers, systems analysts and testers. The projects are exciting as we continue to develop and support the infrastructure for a worldwide technology company of more than 43,000 employees."

ITcareers

For more job opportunities, turn to the pages of ITcareers.
- If you'd like to take part in an upcoming ITcareers feature, contact Janis Crowley, 650.312.0607 or jonis_crowley@itcoreers.net.
- Produced by Carole R. Hedden
- Designed by Aldeboron Grophic Solutions

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Programmer/Analyst Intermediate

Perform research and fact finding under the supervision of the Team Leader to develop or modify computer related information systems. Develop application systems development, implementation and maintenance plans in conjunction with overall departmental responsibilities. Conduct feasibility studies to evaluate proposed system development and expansion plans. Conduct special systems analysis and programming projects as requested and approved. Prepare detailed specifications from which programs will be written Design, code, debug, document and maintain those programs. Bachelor's degree in Computer Science or related field. Requires knowledge of programming in COBOL in an AS/400 hardware environment. Salary position with base pay of $33,500 working 40 Hrs/wk. Must have proof of legal authority to work in the United States. Send your resume to Iowa Workforce Center, 902 W Kimberly Rd., Ste 51, Davenport, IA 52806-5783. Please refer to Job Order IA 1101221. Employer paid advertisement.

Computer: Pro Softnet Corporation has multiple openings at its Woodland Hills office for the following positions: Software Engineers Programmer Analysts Business Managers Mail resumes to: Pro Softnet Corp. 21300 Victory Blvd. #1230 Woodland Hills, CA 91367 Attn: R. Kulkarani Code: P101

Systems Engineer. 40 hrs/wk. 8:30am - 5:00pm. $65,000/yr - 1 position, Central IL; $60,000 - 2 positions, Metro Chicago. Provide service and support of LAN, WAN, LAN/WAN systems. Work with Novell and Microsoft LAN products, WAN technology and protocols (TCP/IP, ISDN, ATM), and Internet connectivity. Work with computing, telecommunications systems, and desktop computing environments (Win 3.X, Win 95/98/NT, electronic messaging, network management systems, UNIX, HTML, mini-computing/mainframe computing systems). Required: Bachelor's degree in Comp Sci/Comp Engineering/Engineering plus 1 yr exp in job offered or as Software Consultant, Network Integrator/Engineer, Network Specialist or Systems Engineer. Experience must include at least 6 months of providing service and support of LAN, WAN, LAN/WAN systems or providing installation/support of NT servers. Applicants must show proof of legal authority to work in the U.S. Take this ad to any Illinois Job Service Local Office. Ref #34403 (Central IL) Ref #34625 (Metro Chicago). An employer paid ad.

Network World - Manager of Database Technology -Southboro, Ma Job Requirements: Masters degree in electrical/electronics engineering or CS, or alternatively a Bachelor's degree in the same and 5 years of progressive IT experience as a database architect or team leader working on disk space management and data retrieval. Must have knowledge of an Oracle 8 environment and developer/designer 2000. Resumes should be sent to hotjobs@nww.com.

**SOFTWARE & ASIC POSITIONS**

**ONEX COMMUNICATIONS CORPORATION,** a suburban Boston-area company specializing in the design, development and marketing of VLSI solutions for emerging, converged communications networks, seeks to fill a number of Software, ASIC, and Systems Engineering positions, at various levels of responsibility, at our site in Bedford, MA.

Most positions require a Bachelor's degree (or equivalent) (some require a Master's degree), together with at least 1 to 8 years relevant industry experience:

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Starting salaries from $75,000 - $150,000, commensurate with the position's specific responsibilities, together with contributory medical and dental, life and AD&D coverage, STD, LTD, 401(k), 3 weeks earned time off, and other industry competitive benefits.

Please mail, fax, or email your resume, indicating Reference Code AIMSP@, to: Onex Communications Corp., ATTN: Ms. Heidy Gisler, 34 Crosby Drive, Bedford, MA 01730; Fax: 781 / 271-9988; email: IMSP@Onexco.com. Visit our website at www.onexco.com. Onex is An Equal Opportunity Employer.

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Network Service Solutions

NET2S is a leading International Consulting and Engineering firm specializing in networking and communications technologies. As an industry leader we seek to provide our Global 500 clientele with creative people who implement innovative technological solutions. Our goal is to offer unparalleled Professional Services on mission critical systems and networks. We are capable of facilitating all phases of the systems and engineering life cycle: Planning, Architecture and Design, Deployment and Integration as well as Technical Operations.

Presently we are seeking qualified networking and systems engineers to our team. If you possess skills in the following areas please apply:
- Sr. Network Engineers (Cisco, Nortel)
- Unix Administrator
- TIBCO Engineer
- Network Security Specialist
- Telecom. Engineer
- Software Developers

All positions require BS/MS degree with a minimum of 2 to 3 years of experience in the field. Must possess excellent communication skills as well. NET2S offers a competitive salary, with an excellent benefits package including medical, dental and 401(k). Relocation assistance may be provided. For immediate consideration, please send your resume to: NET2S, 82 Wall Street Suite 400, New York, NY 10005; Fax: (212) 279- 1960; Phone (212) 279-6565; or Email: jobus-ny@net2s.com

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ONE, Inc. is a professional services firm focused on optimizing demand chains. Our engagements combine multiple software packages in e-business, call center, sales channel automation, direct marketing, customer intelligence, campaign management, personalization and content management. We seek the following professionals to join the ONE, Inc. team:

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A successful track record of selling business solutions in the IT and/or a consulting services, telecom, e-commerce, and/or CRM environment essential. Bachelor's degree or equivalent with a minimum of 5+ years sales experience and a demonstrated achievement of multi-million dollar quotas required. Excellent written, verbal and interpersonal communication skills are a must. We are a pay-for-performance company with added incentives for those who can deliver business opportunities to ONE, Inc. quickly.

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Consultants with in-depth knowledge of one of the following technologies: ATG, iPlanet, Silverstream, Java, JavaScript, Seibel, MFC, ODBC, Visual Basic, GUI, Shell Scripts, C++, Visual C++, MS SQL Server. Requires BSCS/EE or MSCS/EE and 3+ years experience.

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Applicants must have work authorization to accept permanent employment in the U.S. We offer a competitive compensation and benefits package. Send cover letter, resume and transcripts to: **ONE, Inc., Corporate Headquarters, 2895 Greenspoint Parkway, Suite 500, Hoffman Estates, IL 60195. Or apply on-line at: www.oneco.net**
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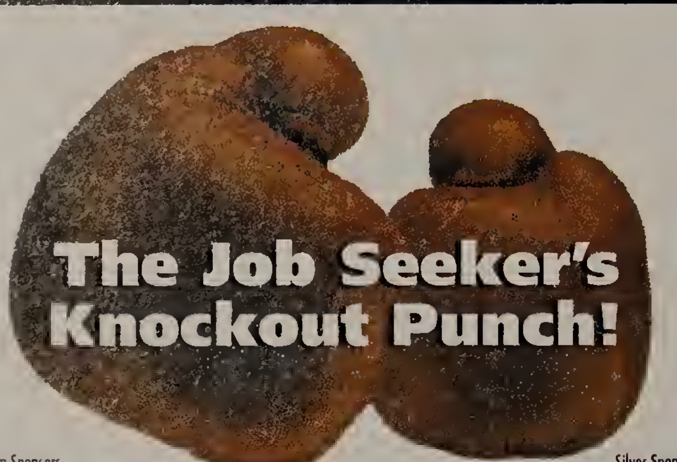

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Tuesday, July 17

**CHICAGO, IL**
Tuesday, July 24

**NEWARK, NJ**
Monday, July 30

**DALLAS, TX**
Tuesday, August 7

**SAN DIEGO, CA**
Tuesday, August 7

**WESTBURY, NY**
Monday, September 10

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## United Nations Joint Staff Pension Fund Investment Management Service Systems Analyst, P-4, New York

The Investment Management Service of the United Nations Joint Staff Pension Fund is seeking to recruit a Systems Analyst for the Investment Management Service. The incumbent is responsible for the design, implementation and maintenance of Windows NT & UNIX LAN, designed for investment and financial services. In addition, newer services are being added to the System that includes Internet, Intranet, and Security and Access Systems issues. The incumbent would prepare technical and user documentation for IMS systems and interdependent applications, as well as planning and co-ordinating training materials and conducting training courses for IMS Staff Members. The incumbent will be responsible for Technical Support and Operations of Market Data Services running on Windows NT, Microsoft SQL Servers running IBM DB2 Engines, UNIX, Bloomberg-on-the-PC Streaming Market Data, SQL based DataStream, and additional Market Data Services that include DTC, Mellon EWB, & newer technologies as they affect the IMS. Knowledge of SWIFT & FIX would be useful. The incumbent will also assist the Senior Systems Analyst in the management of common services and planning including technical patches and upgrades, training of IMS Operations and Investment staff.

The ideal candidate would have an Advanced degree in a technology-related field such as Information management, computer science, mathematics, physics, statistics or the relevant disciplines. MBA w/major in Finance is an asset. A minimum of 8 years of experience in the field is required.

Fluency in English with a working knowledge of other UN language is desirable.

**Qualified women are encouraged to apply.**

The United Nations offers a competitive benefit package. (Please refer to our homepage, www.un.org for further information.)

**Deadline for applications: 11August 2001**

Detailed curriculum vitae including date of birth and nationality should be sent to:
**VA #01-D-JSP-001953-E-NY, Staffing Support Section, Office of Human Resources Management, Room 2475C, United Nations, New York, NY 10017**
**Fax No: 212-963-3134**
**E-mail Address: Staffing@un.org**
Due to the volume of applications, all internal candidates and only those external candidates under serious consideration will be acknowledged.

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COMPUTER/IT
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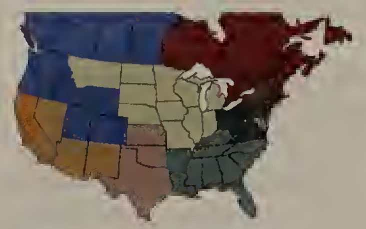

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# ASP crunch time

NetworkWorld Q&A

*Application service providers are under a lot of pressure, with many consolidating services and others failing outright. The chiefs of three major ASPs recently spoke with* Network World *Senior Writer Jennifer Mears about the state of this nascent industry. One thing is certain, they say, hosting software as a service is here to stay. The question is will enterprise customers look to ASPs or to more established outsourcers such as IBM and EDS, which could further erode their business. Qwest Cyber.Solutions CEO John Charters, USinternetworking CEO Andrew Stern and Corio CEO George Kadifa take a look at the ASP world as they see it.*

## John Charters

*CEO, Qwest Cyber.Solutions*

**Where do you see the ASP market going and Qwest Cyber.Solutions fitting in?**

The market's been pretty consistent. What's changed is a lot of the business models. I wouldn't put us in that category. A lot of the smaller, Web-based companies that went after an emerging market segment that pretty much disappeared on them are trying to go up market. We've always been oriented toward the top end of the market. When we launched this business two years ago, we went after the $500 million-and-above type of client and have been pretty successful.

**So why is the ASP market getting such a bad rap recently?**

You've got a bunch of companies that targeted an emerging market segment, so they went with Web products or proprietary products or proprietary infrastructure — it was all or nothing. They were going after all new infrastructure so they built their businesses around that. When that market died, the public ones — even the private ones — couldn't raise capital.

But there is more and more business to win and less and less credible players to provide it. So those that were fortuitous in putting together the business and going after the business in the right space have seen more business. We booked $60 million in contract value in the first quarter. That's probably more than all the other ASPs combined. I don't know what USinternetworking did.

**That's $60 million in ASP services?**

There is no professional services in that. We don't take professional services and layer it in over the contract. If we have a transition services agreement, those are done up front and paid up front. So that was pure hosting and management revenue. The customers are still buying; there are just less and less credible companies to buy from. Now interestingly enough, you see IBM and EDS and others making headway into the market, so we're locked in pitched battles with them. We're in a best and final with them, those guys specifically, on a 7,000-seat SAP deal in Europe and the U.S.

**IBM, EDS and traditional outsourcers are becoming your biggest competitors. What can QCS provide that's different?**

The network. Obviously through my parental relationship with Qwest, we have control of our network without the capital burden of it. I pay for it, we allocate the cost, but it's certainly at a better rate than anyone else buying it from Qwest, plus we have an operational capability on that network that others don't have. We have a relationship with Qwest such that I can tap into their network management feeds and control the network that I provide. We can change their product designs to meet our needs, as well. That's a distinct advantage I have over IBM or EDS. They don't own or control their networks.

The key to a successful ASP model is the ability to scale. But a lot of times these bigger companies want something that is a little more customized.

**What's the difference between QCS and another pure-play ASP such as USinternetworking?**

They build their own data centers; they partner for their networks. That would be two major differences. They finance software for companies. We're not a bank; we don't finance software for companies. We sell them the software or we'll finance it through a third party. Our products don't line up — they do most of their business in Broadvision and Exchange; we do most of our business in Oracle and SAP and PeopleSoft and Siebel of late. So I would say we're higher on the complexity scale in terms of the types of applications we're managing and supporting, thereby generating a better margin.

> **"You've already seen some of the wheat separate from the chaff."**
>
> John Charters, CEO, Qwest Cyber.Solutions

**Overall, where do you see the ASP market going?**

You've already seen some of the wheat separate from the chaff. You've seen the players that are going to make it. And then the question becomes, where do they focus and target their market to become the trusted client adviser? As an industry, we'll continue to push this story that says you don't have to customize, you don't have to listen to that integrator, you don't have to spend three or four times what you spent on software to have it customized to meet your needs.

## Andrew Stern

*CEO, USinternetworking*

**What is going on in the ASP market and where does USinternetworking fit in?**

The industry is making this transition from a classic early stage industry into a mainstream industry. One thing that goes with that is the nature of the customer is changing. A customer in an early phase of industry development is a little bit of a pioneer. Even if you go back a year or two, even when a mainstream company had adopted an ASP model, it was typically for a relatively visionary thing that they were trying to do inside the company. Today, it's just the CFO needs to upgrade his financial automation, the CIO goes out and looks at alternatives and ASPs are one of them.

**As large companies start looking at ASPs, do you see the competition more with a traditional outsourcer like an IBM and an EDS and how do you compete?**

I enjoyed that IDC study [that ranked USi as leading the [ASP market]. It gave me a chance in a competitive situation with IBM to point out we're four times the size of IBM in this business. We win because we have much more experience. We win because we have an integrated service offering, and we've learned a lot of lessons over almost 200 clients that have taught us how to do this better.

**If you were talking with an enterprise customer who's looking at IBM and EDS and looking at USi, what's the difference?**

Fundamentally, the ASP model value is that I'm going to deliver functionality as a fully integrated service. So if you want to close your books, I'm going to deliver the automation that lets you close your books. You want to sell something on the Web, I'm going to deliver the automation, the functionality that allows you to sell something on the Web. And we've spent a lot of time figuring out how to take all these components: the application, the integration, and the network and the hardware and the processes that put them together and run them and engineer them as an integrated offering. The best integrator is only working on one part of the problem. So what happens with an IBM? Well, IBM Global Services is a huge business, it obviously has far more experience than we do at the integration. It actually has more networking experience than we do. And more data experience than we do, although they probably don't have more client-server data experience than we do.

**You say that there has been a slower than expected adoption of the ASP model, but a lot of enterprise customers are starting to look to you. How do you see this playing out?**

It's slower than expected, but we shouldn't have expected it to go faster. We went from the stage where it was truly a relatively visionary adopter, where it's someone trying to do something different to change their business. Whereas now a lot more of the adoption is people just looking to do the things they've always done in their business, but do it in a better way. At this stage what we're seeing is it's being considered in most cases. I don't think there is a major company CIO that doesn't at least think about ASPs today.

**Andrew Stern, USi CEO, says ASPs are becoming a mainstream market.**

## George Kadifa

*CEO, Corio*

**The economy is pretty tough for everybody. How is Corio doing financially?**

The macroeconomic conditions are tough. But from the Corio perspective, we've been focusing on building the business. We issued our Q1 earnings recently, and we still have a lot of cash in the bank. We have about $117 million in cash right now. We've been quite efficient at cash management, while at the same time servicing our customers and winning new business. We expect this year to have some demand uncertainty to it like everyone else is experiencing. We have customers who are

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## ASP,

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growing with us. If there are some marginal customers who can't make their payments, we're working with them on exit plans, and it's just a matter of execution now.

**Some ASPs have scaled back, focused more on professional services, or cut down on offerings. Is Corio planning changes?**

No. The business model has been the same since we started the company. We haven't really made any changes to it. Occasionally, we do some tuning here and there, but nothing of a major strategic change. We have a core set of services that we're still delivering. We have not scaled back in that regard. But at the same time we're not broadening and adding new offerings. We're trying to do more with what we have.

**As your focus moves more into the enterprise realm, what can users expect?**

We're not moving away from what we used to do. We're basically adding to what we've always done. A couple of years ago we were focused on the high growth, middle market customer base. We still are. Obviously, today we have very stringent customer acceptance criteria; that is you need to be with us for the next three years so that we can build a three-year contract with you. At the same time, the high end of the market, the Fortune 500 companies, have approached us.

**How does Corio differentiate itself from other ASPs such as USinternetworking?**

One is, we are enterprise-applications-focused, that is we have strong capabilities from an application perspective for application management and application operations, hosting management. Also, our business model is different. Our belief is it is a superior business model in the sense that we did not spend the amount of cash that some did in building data centers. We saved the company between $200 million and $300 million by not doing so. And frankly, at this stage of data center availability, there is almost a glut today in data center space. We also have an exchange side to the business that we've been able to build very successfully in a very short period of time in addition to the core capabilities we have. We are a very large [enterprise resource planning] hoster. We might be the largest. We are a very large [customer relationship management] hoster also.

> ***"We expect this year to have some demand uncertainty . . . "***
>
> George Kadifa, CEO, Corio

**How do you see the ASP market evolving?**

The market is evolving toward more of a core business model; that is, a lot of the ASPs are focusing on profitability and are focusing on being very cash efficient and are focusing on delivering value propositions to the customers that are second to none. The market is rationalizing; the marginal players have disappeared. It will get rationalized in the next 12 months or so into a small number of significant players.

**How can you build a scalable model when customization is required?**

We looked at that initially and in the old days we thought that things should be vanilla, otherwise they wouldn't scale. But the more we looked at our cost structure, the more we realized that customizations are actually based at the application layer. No one is customizing the operating system, or the database, or the hardware. So if we maintain a technology stack that is not customized, we will be able to scale. The customization would impact maybe 20% of the cost structure, while 80% of the cost structure would still scale with what we have. So our belief today, and that's a myth we want to destroy frankly, is an ASP can deliver a fully customized solution and still be able to scale.

**At this point, who are your primary competitors?**

In the two segments they change. In the high end of the market, in the Fortune 500 companies, typically the old outsourcers. In the midmarket companies, the canned ASPs out there.

**Any that you come up against regularly?**

USinternetworking is one of them. Sometimes Agilera is another one.

**How much threat do you feel from the traditional outsourcers? Do you think there is also room for the pure-play ASPs?**

Yes, because we have a different approach to the customer. We're not outsourcers, we do not take things out and keep them outsourced for 10 years. We operate on a much more integrated basis with our customers. We give them more visibility instead of less. We give them more control instead of less, and we believe we have a better economic value proposition also. ◪

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## Starbucks,

continued from page 1

"This is one of the largest wireless networks that is going to be deployed globally for sure," says Ali Tabassi, CTO and development officer at MobileStar. "This is our biggest project."

Tabassi says MobileStar is seeing interest in its wireless network from other hospitality chains. Among MobileStar's customers are American Airlines Admirals Clubs and Columbia Sussex Hotels.

"As we continue expanding our footprint to support Starbucks, it becomes more convenient for them to sign up," Tabassi says.

Other IT companies benefiting from the Starbucks project are Microsoft, which is providing a customized Web browsing experience, and Compaq, which will provide wireless LAN cards and iPaq Pocket PCs for loan or purchase at the shops.

"Starbucks was seeing more business people and college people come into their shops with laptops to drink lattes while they worked," says Dayna Fried, Compaq's spokeswoman on the Starbucks project. "[The company] thought: Why not turn Starbucks into a place to hold business meetings? They had to go wireless because they didn't want people to trip over wires."

Starbucks began talking about its wireless plans in January and will launch the service in Dallas, Seattle and San Francisco by mid- summer.

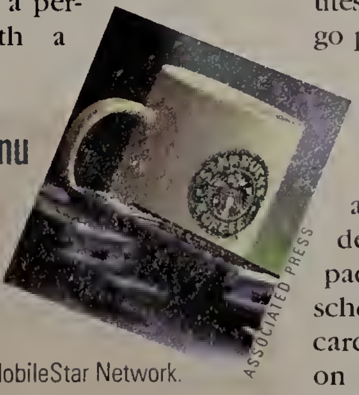
Each Starbucks will have an 802.11b wireless LAN that is hooked up to a T-1 line out to MobileStar's backbone. At each store, MobileStar is installing a wireless transceiver that can transmit and receive messages as well as a premises router and a miniswitch that hooks into a dedicated T-1.

"We have deployed in over 350 Starbucks locations. The majority of them are installed in Seattle, San Francisco, San Jose, Dallas, New York and Houston," Tabassi says.

When a person with a wireless device, such as a laptop or handheld, comes into a Starbucks shop and opens up the Web browser, a welcome screen will be pushed onto the computer that provides information about Starbucks' promotions. End users who want Internet access will need to sign up as subscribers to the MobileStar service.

### Starbucks adding wireless to the menu

**Ubiquitous coffee shops to be connected to a wireless network that will:**



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- Eventually cover 4,000 stores in North America.
- Feature 802.11b wireless LAN connectivity from MobileStar Network.
- Cost $15.95 per month, or 20 cents per minute.
- Include a customized Web browser from Microsoft.
- Utilize Compaq wireless LAN cards and iPaq Pocket PCs.

MobileStar will offer Starbucks customers two types of subscriptions that are good wherever they access the MobileStar network: monthly plans that start at $15.95 for 200 minutes per month or a pay-as-you-go plan that costs 20 cents per minute.

To access the MobileStar service, Starbucks customers will need a wireless LAN-capable device. Starbucks and Compaq officials are working on a scheme to offer wireless LAN cards and iPaqs to customers on a loan basis if they don't have a wireless-enabled computer, Fried says. Starbucks also may sell wireless LAN cards and iPaqs — which retail for $500 to $1,000 — at some stores. ◪

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# Backspin

## Approaching a cure, sip by sip

MARK GIBBS

e were looking for a cure. I was talking to a friend of mine who we'll call Mr. X (though his real name is Bob) and he told me of his problem: How to persuade the management of the small company he had just joined that they should spend a significant amount of money on the corporate network.

Bob, er, Mr. X was hired as network manager and had a departmental staff of one — himself. His concern was that, prior to his arrival, four people pretending to be network managers had a hand in what Mr. X called, for the sake of not using an obscene word, "engineering" the network. At least three of them (who he had never met but who, by all accounts, could well be qualified as clinically deranged) had created a network so labyrinthine and undocumented that it had taken him three weeks just to find out what was going on.

Now Mr. X had been very excited when he got the job — a small growing company, lots of responsibility, reasonable salary, not much of a commute.

But reality had walked up, introduced itself and then slapped him across the face when he started to look seriously at the systems he was to control.

One of his major hurdles, one that was insurmountable without spending money, was that most of the servers and firewalls were running software that was out of date. But the IT budget was puny.

In short, Mr. X had inherited an ugly mess.

So Mr. X's choices were two. The first (and least palatable) was to tinker and tweak and hope that in so doing he would fix the myriad problems and avoid causing the entire teetering edifice to collapse like a house of cards bowled over by a 200-pound Saint Bernard in pursuit of the family cat.

His second was to get the powers that be to cut loose with the cash and let him get some help to sort things out on a long weekend.

So the question we were discussing was how to sell the second plan, the first being unacceptably risky in terms of possible downtime (although Mr. X considered that even without tinkering, the whole mess could crash anyway from any of a dozen problems).

We came up with four approaches:

**No. 1:** Make a forceful appeal to senior management. Ask for time in a senior staff meeting and, when the time came, take the CEO hostage until the rest of management signed off on the plan. While this would certainly get things moving, the possibility of a SWAT team getting involved would likely introduce unacceptable project delays.

**No. 2:** Hire a private detective to dig up dirt on the chairman of the board. The idea was to then threaten to expose the chairman unless he pushed the sign-off through. We liked this one, but paying for the detective would probably absorb all of Mr. X's paltry budget and if there was no dirt on the chairman he'd be no better off and budgetless to boot.

**No. 3:** Engineer a budget increase. We liked this one a lot. All Mr. X would have to do is get into the accounting system and make a few minor changes. While we were sure that no one would suspect who actually made the changes, we figured that the CFO would notice before Mr. X could spend the money.

**No. 4:** Assassinate the network. Working on the highly plausible premise that the network would probably self-destruct if left alone, hastening the process would not really be unethical. The result, we theorized, would act as a wake-up call, and Mr. X would soon be awash in budget. Mr. X rejected this on the grounds that, as no one in the company other than him really understands networking, they'd just expect him to fix it and would perceive any failure to do so as an act of wanton negligence.

By now we were on the second bottle of wine and the cigars were lit. Mr. X came up with another choice. He's putting his resume into circulation on Monday. Some networking problems just don't have a cure.

*Send your approach to nw column@gibbs.com.*

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# 'NET BUZZ

The latest on the Internet industry

PAUL MCNAMARA

**Another of those** "who's online and who's not" surveys was getting press attention last week, primarily because it painted the Internet as a paper tiger ... make that a paper tiger *cub*.

"Why aren't more people online?" asked the press release from researchers at **Ipsos-Reid**. "No need, no interest, no money keep billions away." In fact, the survey says "only" 6% of the world's population is connected.

Who's to argue with that figure, given the economic, social and political realities in so many foreign locales? But what made the report interesting — alarming, if you're concerned about the future of e-commerce — is its attention to a particular segment of the unwired population: those who simply *choose* not to play.

"In the developed world, a substantial number of people who could very easily go online have decided not to," says **Brian Cruikshank**, a senior vice president at Ipsos-Reid. "They see no compelling reason to be on the Web. The hype and the promise of the Internet clearly hasn't impressed them — not yet, at least."

"Not yet" is the operative phrase here, although it certainly wasn't emphasized in the press release. No one should believe for a moment that this 6% situation is settling into anything approaching permanency.

Take the case of **Rich** the carpenter. Rich was in my home recently helping my brother-in-law/his friend transform my bare basement into living space.

Rich doesn't have Internet access, a PC or, based on our conversation, a burning desire to acquire either.

However, he has had a lifelong passion for the guitar. And his sole experience with the Internet — downloading bootlegged sheet music at a buddy's house — played right into that passion. "Had a stack this high," he said with wonder. "Would have cost me hundreds at a store."

(I spared him my stock lecture on intellectual property theft. Heck, the guy was building my basement on his day off for nothing more than a few beers.)

Rich is going to find his way online sooner or later; he's hooked, even if he hasn't realized it yet.

In fact, sooner or later — and it says here sooner — most everyone is going to hear their tune being strummed on the Internet. So don't put much stock in surveys that indicate otherwise.

Ever wonder what happened to former **Cabletron boss Craig Benson**?

Well, I'm going to tell you anyway: He's running for governor in New Hampshire. Check out **www.whybenson.com**.

Never having met Benson, I can't offer much of an opinion about the man or his candidacy.

However, having spent far too many years covering state and local governments before taking this gig, I can tell you this about businessmen who fancy themselves politicians: They generally have no idea what they're getting themselves into.

Branding your company is difficult enough. . . . Unbranding it may prove tougher.

Case in point: **Federal Express**, the package pushers. A look at the "corporate timeline" on **www.fedex.com** was necessary to bring Buzz up to speed on the fact that Federal Express is now simply **FedEx**.

Many of you are no doubt shaking your heads and mumbling, "What a moron; I already knew that."

But did you know the change took place in 1994?

Seven years later and they're still trying to shake the old name. Think about that next time there's talk in the boardroom of finding a snappy new moniker for your online business.

By the way: Every company's Web site should include a corporate timeline. Few do. This will be appreciated not only by the press, but also customers who want to know you've been around the block a time or two.

*Get it off your chest. The address is buzz@nww.com.*

PC EXPERT
Editors Choice
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Reseller News
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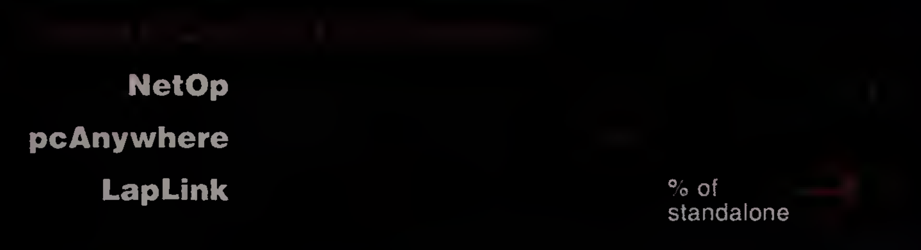

Reported by *Computer Reseller News*, May 24, 1999

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